Common Core State Standards and Montana Standards Analysis Report

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Executive Summary

This report outlines the Office of Public Instruction's process in determining alignment of the Common Core State Standards with the Montana Content Standards. The Common Core State Standards Initiative led by the Council of Chief State School Officers (CCSSO) and the National Governors' Association (NGA) began in June 2009 with the College- and Career- Readiness Standards and was completed with the release of the K-12 Common Core State Standards in June 2010. The Office of Public Instruction (OPI) began a review process in July 2009 by convening a panel of exemplary Montana educators, including postsecondary professors, to review the drafts and provide feedback on the drafts for the state superintendent's response to CCSSO and NGA. The OPI began an analysis of the Common Core State Standards (CCSS) and the Montana Standards in June 2010 with out-of-state content experts and a team of educators from across the state in August 2010.

The Office of Public Instruction (OPI) contracted with two out-of-state content experts to create an alignment of the Montana grade level Essential Learning Expectations (ELE) in Communication Arts and Mathematics with the CCSS.

Gary Graves, a private consultant from Oregon, completed the communication arts analysis. His overall findings state that: "the Common Core is stronger and potentially more useful to Montana educators and students and I recommend that Montana adopt the Common Core Standards. Two primary reasons support my belief:

- The Common Core offers an obvious and very systematic progression of student performances in the English Language Arts going from simple cognitive demands in primary grades to increasingly higher order thinking requirements in the secondary grades.
- The Common Core appendices also offer a very helpful collection of specific examples of appropriate grade-level texts and models of performance to guide teachers as they implement the standards in their classrooms."

"I believe the Montana ELE are stronger in some areas than the Common Core, i.e., an emphasis throughout on student choice and self-exploration, and the consistent promotion of cultural awareness and understanding through the English Language Arts. Incorporating some of Montana's diversity language into the national standards will add to the quality of the Common Core for use in Montana's schools."

Dr. Eric Milou, a professor at Rowan University in New Jersey, completed the mathematics alignment. His overall findings state that: "the Common Core standards are more specific than Montana ELE; have little to no algebraic expectations in grades K-3; and push fractions/decimal work into earlier grades than Montana. The Common Core and Montana have geometry expectations at very different grade levels. Probability expectations are delayed in the Common Core. However, by grade 8, the expectations of Montana and the Common Core are about equivalent but they arrive there via two different paths. The high school expectations of the Common Core are more rigorous and more detailed than Montana's ELE."

A group of K-20 Communication Arts and Mathematics educators from across the state completed an alignment of the Common Core State Standards (CCSS) with the Montana Essential Learning Expectations using the Achieve Gap Analysis Tool. The teams agreed that the Common Core State Standards are what students need to know and be able to do. After listing the advantages and disadvantages regarding the CCSS, the team found the differences create a critical need for additional culturally relevant standards, professional development, and well-planned implementation.

The Common Core Comparison Tool was created by Achieve; the data are the result of judgments made by the members of the state analysis team. Achieve is an independent, bipartisan, non-profit education reform organization. The Achieve Gap Analysis report highlights key findings from the comparison. The Communication Arts findings resulted in 81 percent of the CCSS match the Montana ELE. The Mathematics findings resulted in 90 percent of the CCSS match the Montana ELE with the exclusion of high school science, technology, engineering, mathematics (STEM) "+" standards. With the inclusion of the high school science, technology, engineering, mathematics (STEM) "+" standards, the results were 81 percent of the CCSS matched the Montana ELE.

A third form of comparison was the use of the Survey of Enacted Curriculum (SEC). Content maps created through the SEC show a comparison between Montana's Content Standards and the Common Core State Standards. The SEC maps are created to illustrate the content of the standards based on the knowledge and skills within the standards document and the cognitive demand to which the students must apply the knowledge and skills. Montana's grade four, grade eight, and upon graduation benchmark maps are set alongside the Common Core State Standards at grade four, grade eight, and grades 9-12 for ease of comparison. The SEC contour maps give a visual of the similarities and differences in content and range of cognitive demand levels.

This analysis report includes a compilation of the process and detailed results including a complete Achieve Gap Analysis Report as well as SEC contour maps for grade four, grade eight, and grades 9-12. The hope is that this comprehensive examination of the Common Core State Standards, in comparison with the Montana Standards, will inform policy makers and educators as they move forward in effectively educating Montana students.

This report outlines the Office of Public Instruction's process in determining alignment of the Common Core State Standards with the Montana Content Standards. This process began in June 2009 and included Montana educators from across the state.

Common Core State Standards Initiative

The Common Core State Standards Initiative in English/language arts and mathematics, led by the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA), began early in 2009. The first drafts of the college- and career-readiness standards were released in July 2009. When the college-and-career draft standards document was released by CCSSO and NGA, the Office of Public Instruction (OPI) convened a panel of exemplary Montana educators, including postsecondary professors, to review the drafts and advise the state superintendent on a response to the draft. The response to CCSSO and NGA provided input to edits made to the college- and career-readiness standards. The college- and career- readiness standards provided the foundation for drafting the K-12 Common Core State Standards (CCSS).

The first K-12 Common Core State Standards draft was released in November 2009. Again, the OPI convened the advisory panel of Montana educators with experience in standards and subject area content to review the draft and advise the state superintendent on a response to the CCSSO, NGA, and the CCSS writing team. The panel examined the draft with an eye for appropriate content and placement of standards at each grade level. Many issues were discussed with research-based pedagogical content considered to fully communicate a response about the draft. A second draft of the K-12 standards was released in February 2010. The OPI was able to follow the same process to provide feedback on the draft as the K-12 CCSS were finalized. The final K-12 Common Core State Standards (CCSS) were released in June 2010.

If states select to adopt the CCSS, 100 percent of the document must be adopted; however each state may determine if there is missing content. If this determination is made, a state may add additional content to their state standards. This directive is critical to Montana because of the lack of American Indian content within the CCSS. Therefore, content would need to be added to the CCSS to meet the Montana Constitutional requirement.

> **Constitution of Montana -- Article X -- EDUCATION AND PUBLIC LANDS Section 1. Educational goals and duties.** (1) It is the goal of the people to establish a system of education which will develop the full educational potential of each person. Equality of educational opportunity is guaranteed to each person of the state. (2) The state recognizes the distinct and unique cultural heritage of the American Indians and is committed in its educational goals to the preservation of their cultural integrity. (3) The legislature shall provide a basic system of free quality public elementary and secondary schools. The legislature may provide such other educational institutions, public libraries, and educational programs as it deems desirable. It shall fund and distribute in an equitable manner to the school districts the state's share of the cost of the basic elementary and secondary school system.

Out-of-State Content Expert Alignment

The Office of Public Instruction (OPI) contracted with two out-of-state content experts to create an alignment of the Montana grade level Essential Learning Expectations (ELE) in Communication Arts and Mathematics with the CCSS. Gary Graves, a private consultant from Oregon, completed the communication arts alignment. Dr. Eric Milou, a professor at Rowan University in New Jersey, completed the mathematics alignment. To complete the alignments the Montana ELE were used rather than the Montana Content Standards or benchmarks. The ELE were created by Montana teachers to provide a grade level learning progression for each benchmark. Therefore, the ELE were used for the alignment because of the difference in the standard statements in the CCSS "grain-size." The CCSS has grade-by-grade standards; Montana has benchmarks at the end of grade 4, end of grade 8 and upon graduation.

Communication Arts

Table 1

ELA Common Core State Standards and Montana Essential Learning Expectations Comparison Summary by Gary Graves		2 = well aligned; 1= somewhat aligned; 0 = not aligned				
Grade	Comment	S & L*	Reading	Lit.**	M. Lit.***	Writing
K	The speaking and listening Montana Essential Learning Expectations (ELE) seem more comprehensive and useful than the Common Core State Standards (CCSS).	0	2	0	0	1
1	There is no match to the Montana media literacy ELE.	0	2	0	0	0
2	Many components of various ELE are wrapped into each CCSS writing standard 1-3.	0	2	0	0	1
3	Of the 27 Reading Common Core standards, The Montana ELE aligns with 18.	1	2	0	0	1
4	There are 18 Montana Speaking and Listening ELE at this grade level. CCSS has 6 standards (standard 1 has 4 lettered expectations) totaling 10 standards at this grade level. Four of the CCSS match with the ELE.	1	2	0	0	1
5	There is no match in the Montana writing ELE to CCSS writing standard 6: With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.	1	2	0	0	1

*Speaking and Listening
**Literature
***Media Literacy

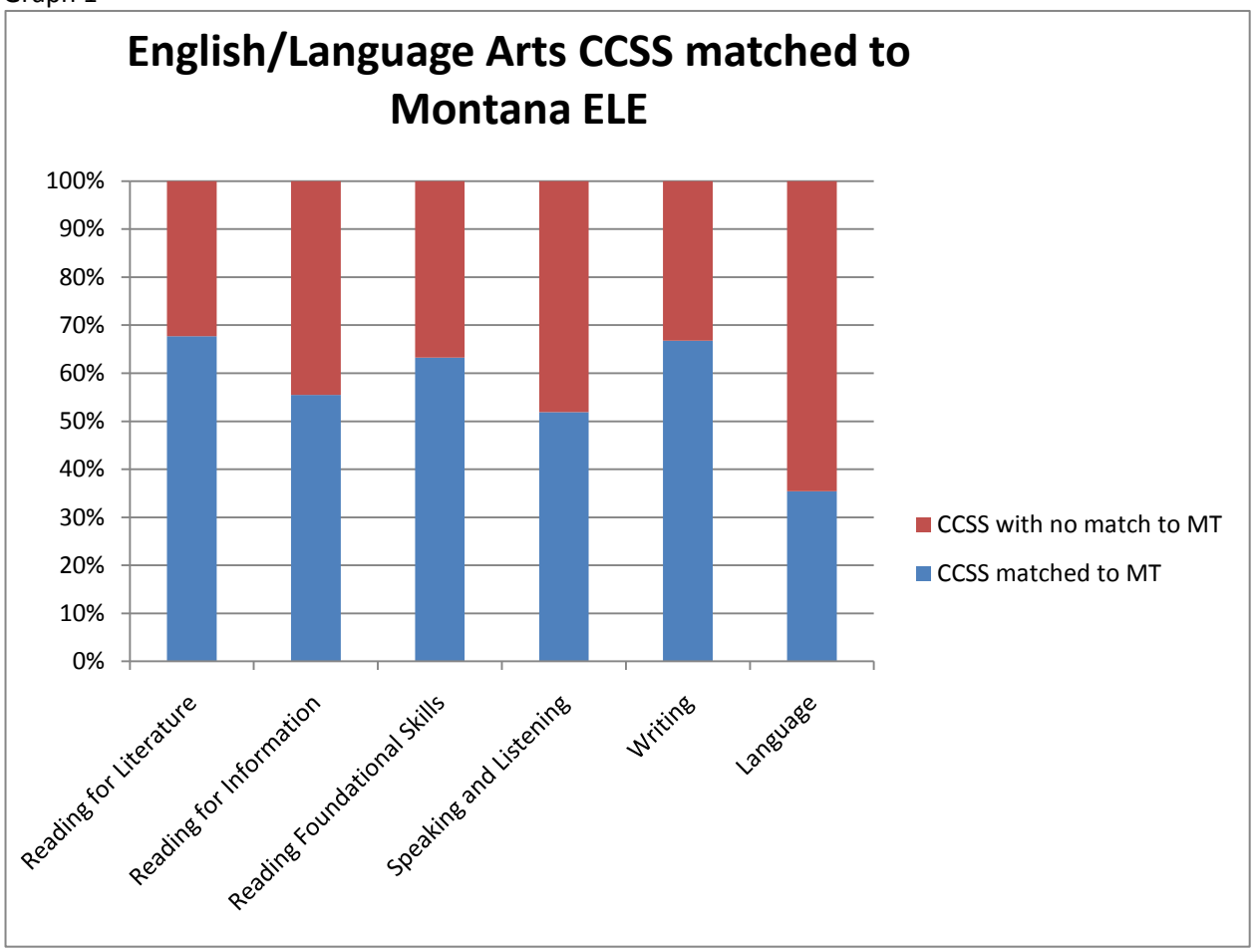
ELA Common Core State Standards and Montana Essential learning Expectations Comparison Summary by Gary Graves.		2 = well aligned; 1= somewhat aligned; 0 = not aligned				
Grade	Comment	S & L*	Reading	Lit.**	M. Lit.***	Writing
6	Most of the Montana ELE in grade levels 6-8 are similar or identical to those in earlier grades. There are a few that reflect increasing reading demands and more complex cognition. The CCSS however, increasingly use verbs such at analyze, evaluate, trace and evaluate, compare and contrast, and delineate. The CCSS also require students to understand and apply explicit vs inferential argument, figurative and connotative meanings, objective conclusions vs opinions, analogies and allusions and to be able to assess and prioritize evidence. There does not seem to be a clear progression of those higher-order thinking skills through grades 6-8 in the ELE. In addition, the CCSS become quite specific, and limiting, in what kinds of tasks to which the higher-order actions are applied. Consequently, clear alignment of Grades 6-8 Reading ELE is less evident to me than in Grades K-5.	1	1	0	1	1
7	The Montana literature ELE only has a match to CCSS literature standard 4 and 6.	0	1	0	1	1
8	The three major writing types are separated and elaborated in the CCSS grade-level standards 1-3 and the writing process is identified in CCSS standard 5.	1	1	1	1	1
9-10	Many of the Reading ELE in 9-10 are similar or identical to those in earlier grades, while the CCSS tend to become more rigorous and specific to complex reading tasks. The ELE here also continue to articulate many skills/expectations that the CCSS have dropped for their standards. As a result, Grades 9-10 ELE increasingly exhibit less obvious alignment to the CCSS.	0	2	1	1	1
11-12	In the Common Core 11-12 grade band the standards become increasingly more specific, especially in standards 4 – 9.	1	1	0	1	1

Overall	After becoming very familiar with the ELE and the Common Core this summer I believe the Common Core is stronger and potentially more useful to Montana educators and students and I recommend that Montana adopt the Common Core Standards. Two primary reasons support my belief: • the Common Core offers an obvious and very systematic progression of student performances in the English Language Arts going from simple cognitive demands in primary grades to increasingly higher order thinking requirements in the secondary grades; and • the Common Core appendices also offer a very helpful collection of specific examples of appropriate grade-level texts and models of performance to guide teachers as they implement the standards in their classrooms. I believe the Montana ELE are stronger in some areas than the Common Core, i.e., an emphasis throughout on student choice and self-exploration, and the consistent promotion of cultural awareness and understanding through the English Language Arts. Incorporating some of Montana's diversity language into the national standards will add to the quality of the Common Core for use in Montana's schools.

As noted in table 1 above, the alignment completed by Gary Graves matched the Montana ELE to the CCSS. The results show that in the area of Reading there is good alignment between the two documents. In the areas of speaking and listening and media literacy in the Montana ELE do not align well with the CCSS. The CCSS weave media literacy into the standards, rather than having a stand alone standard and benchmarks. In the area of speaking and listening, the Montana ELE focus more on processes and strategies of communication. The CCSS emphasize comprehension, collaboration, and presentation of knowledge and ideas through communication.

The Montana writing ELE have a weak alignment to the CCSS writing standards. The CCSS present each type of writing with elaboration on the knowledge and skills the students need.

Graph 1



The above graph displays the findings of Gary Graves' alignment between the CCSS and the Montana ELE. The x axis represents the strands of the CCSS. The blue bars represent the CCSS that had knowledge and skills that matched the Montana ELE. The red bar represents the knowledge and skills within the CCSS that Mr. Graves determined are not within the Montana ELE.

The graph shows that the strand of the CCSS with the best match to the Montana ELE is Reading for Literature. The match between the Montana ELE and the CCSS is not as strong with Reading for Information. The Montana document that does not separate the two types of text, it only contains one reading standard. The graph shows that the strand of the CCSS with the fewest matches to the Montana ELE is speaking and listening and language. The CCSS does not address the process of communication as the Montana benchmarks do. The CCSS also approaches speaking and listening from a business preparation approach much more that the Montana benchmarks. The Montana standards do not contain a separate strand for language, it is interwoven with the benchmarks in writing and reading.

Mathematics

Table 2

Mathematics Common Core State Standards and Montana Essential Learning Expectations Comparison Summary by Dr. Milou		2 = well aligned; 1= somewhat aligned; 0 = not aligned			
Grade	Comment	Number	Algebra	Geometry	Prob/ Stat*
K	Common Core expectations are higher including counting to 100 and writing 0 to 20. No standards on patterns in Common Core.	1	0	2	NA
1	Standards are very similar in grade 1. Common Core specifies add and subtract within 20 (and word problems). No algebra standards in common core.	2	0	2	NA
2	Geometry standards in common core have no match in Montana. Data Analysis standards are less in common core (no mention of min, max, and range). Algebra standards in Montana have no match in Common Core.	2	0	1	0
3	Common Core has specific expectations (far more specific than Montana standards) with fractions. Common Core begins study of area (no mention in Montana in grade 3). Montana's probability and geometry standards are misaligned here as common core has NO probability and a different set of geometry standards. Common core focuses on area in geometry and Montana has several different expectations in geometry.	0	1	0	1
4	Very specific expectations in Common Core on fractions and decimals. Common Core geometry standards have no match with Montana ELE.	0	1	0	1
5	Common Core starts multiplication/division of fractions (no mention in Montana). Montana ELE have many geometry benchmarks not called for in the Common Core in grade 5.	0	1	1	1
6	Common Core begins study of integers (no mention in Montana). Common Core begins study of one variable equations and inequalities. No probability expectations in grade 6 in Common Core.	1	1	1	1
7	Operations with integers in Common Core (not in Montana). Algebraic expectations are more rigorous in Common Core.	1	1	2	2
8	Common Core algebra expectations are more specific but rigor is about the same.	2	2	2	2
HS	Common Core has many more expectations including complex numbers, vectors, more rigorous and specific algebra standards, trig, and circle standards.	1	0	0	2

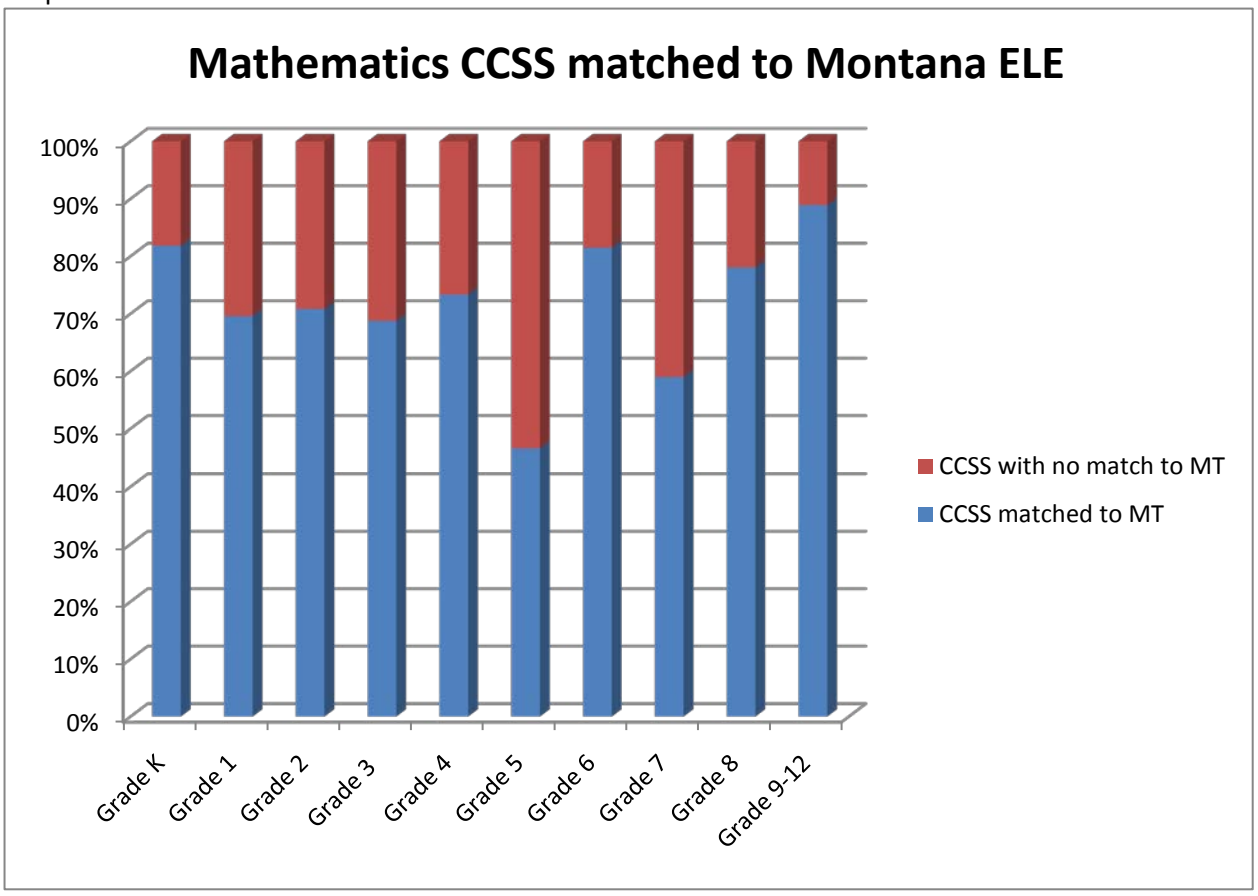
*Probability/Statistics

Overall	Common Core standards are more specific than Montana ELE. The Common Core has little to no algebraic expectations in grades K-3. The Common Core pushes fractions/decimal work into earlier grades than Montana. The Common Core and Montana have geometry expectations at very different grade levels. Probability expectations are delayed in the Common Core. However, by grade 8, the expectations of Montana and the Common Core are about equivalent but they arrive there via two different paths. The high school expectations of the Common Core are more rigorous and more detailed than Montana's ELE.	1.0	0.7	1.1	1.3

As noted in Table 2 above, the CCSS K-2 standards align well with Montana ELE in Number and Geometry. This is due to the CCSS emphasis on Number in the primary grades. The grade-to-grade comparison results in a 1 or 0 alignment in grades 3-5 because several CCSS are at a different grade level

than Montanas ELE. This grade-to-grade comparison also results in grade 8 having well aligned scores. Grade 8 has the best alignment in all four areas indicating that the Montana ELE and CCSS expectations for high school are similar.

Graph 2



The graph above displays Dr. Eric Milou's alignment between the CCSS and the Montana ELE. Dr. E. Milou compared the Essential Learning Expectations for each grade level with the corresponding CCSS grade level standards. The blue bars represent the percent of Montana grade level ELE that matched the CCSS grade level standards. The red bar represents the percent of Montana grade level ELE that did not match the CCSS grade level standards. Kindergarten and high school have the greatest percent of matches showing that Montana ELE and CCSS start with similar expectations in kindergarten. Montana ELE outlines a different path or progression through grades 1-8. Montana ELE and CCSS end with similar expectations in high school. Grade 5 is interesting because Montana ELE has a K-4 and a 5-8 progression of expectations versus CCSS with a K-5 and a 6-8 progression of expectations.

Achieve Gap Analysis Process

A group of K-20 Communication Arts and Mathematics educators from across the state were brought together in August 2010 to complete an alignment of the CCSS with the Montana Essential Learning Expectations using the Achieve Gap Analysis Tool. The educators worked in grade level teams using a comparison process to determine the alignment level of the knowledge and skills the CCSS and Montana ELE matched (0- no match, 1- weak match, major aspects of the Common Core not addressed, 2-good match, with minor aspects of the Common Core not addressed, and 3-excellent match). The team also included notes within the alignment document to indicate why it was or was not a good match and if it was an appropriate place for Indian Education to be included in the CCSS.

At the conclusion of the comparison process the teams discussed the results and made a recommendation based solely on the expected knowledge and skills for K-12 students stated within the documents.

Communication Arts

The majority of the Communication Arts Analysis Team stated that Montana should adopt the CCSS. It was difficult for the group of educators to base the decision only on the knowledge and skills outlined in the document without bringing in other considerations. The table reflects some of the overall advantages and disadvantages of the CCSS based on the team's discussion.

Table 3

Communication Arts Analysis Team	
Advantages of CCSS	Disadvantages of CCSS
CCSS will provide common expectations for college entrance, for teacher preparation and beginning teachers	Cultural and societal issues are not addressed
Increased rigor	21st century goals are largely missing
Consistent learning skills for all students	CCSS based on a business model that is marginalizing creativity
Specific skills are required, but the teacher approach to instruction is not dictated	Self-monitoring and reflection pieces are missing throughout
Test scores will be more comparable across the nation	Anthology approach in instruction is implied

Mathematics

The Mathematics Analysis Team unanimously agreed and wrote the following recommendations.
"We, PK-20 mathematics educators from across Montana, recommend that Montana adopt Common Core State Standards because this is what students need to know and be able to do." (August 13, 2010)
"We, PK-20 mathematics educators from across Montana, recommend that Montana culturally relevant standards be added to the Common Core State Standards. The Montana Constitution (MCA 20-1-501, Article X) clearly states that any adopted standards must include Indian Education for All. Therefore, culturally relevant standards must be integrated within the Common Core State Standards at each grade level." (August 13, 2010)

During the intense analysis, the team recorded notes to identify areas that need to be addressed if the CCSS are adopted. The primary differences between the CCSS and the Montana ELE noted by the mathematics team were the exclusion of culturally relevant standards. The CCSS language gives a very explicit description of what students need to know and be able to do, leads to conceptual understanding not simply skills, and increases expectations in high school which includes science, technology, engineering, along with mathematics (STEM). These differences create a critical need for professional development and well planned implementation.

Table 4

Mathematics Analysis Team	
Advantages of CCSS	Disadvantages of CCSS
Increased expectations for use of technology	Cultural relevance missing, specifically (including those of Montana American Indians)
Consistent expectations (accountability)	CCSS language inconsistent across grade levels
Mathematical practices are part of standards Focus on explain, analyze, justify	Multiple concepts within each of the CCSS standards
Well designed and consistent conceptual continuum Strong vertical structure	Lack of correspondence to Montana grade level ELE
Continuity across the nation	Montana in NAEP top 5 already with local control Takes 13 years for full implementation
More prescriptive for teacher Concepts specific More specific in use of math terms	CCSS very wordy at times CCSS explicit, detailed strategies
CCSS indicate real world applications	Elementary focus on number and not world application
Full-day kindergarten standards /provide consistency in Kindergarten programs	Probability not emphasized in K-5
Coordinate planes included in K-8 standards	Written to prepare 8th graders for algebra
Consistent progression of concepts	Excessive data analysis and probability (9-12)
Function notation emphasized (9-12)	Probability is only 9 out of 31 statistics-data standards
Advanced courses delineated in 9-12 High conceptual expectations (9-12)	CCSS assumes a minimum of three years math in high school
End goal of college – career readiness	HS 9-12 has 190 standards

Achieve Gap Analysis Report

Achieve, an independent, bipartisan, non-profit education reform organization, designed the Common Core Comparison Tool; the data are the result of judgments made by the members of the state analysis team which were a group of K-20 Communication Arts and Mathematics educators from across the state. The following is a summary of the Achieve Analysis report.

Communication Arts

The Communication Arts Achieve report outlines the findings of the alignment team (Appendix A). The team determined that 81 percent of the CCSS match the Montana ELE.

The alignment also shows the strength of the alignment between the CCSS and the Montana ELE. Overall the match of the CCSS to the Montana ELE was 81 percent. A further look at the degree of alignment is as follows:

- 26% of the CCSS are excellent matches to the Montana ELE;
- 38% of the CCSS are good matches to the Montana ELE;
- 16% of the CCSS are weak matches to the Montana ELE; and
- 19% of the CCSS have no match to the Montana ELE.

These percentages do not include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects as they were not part of this alignment process.

Additional graphs contained in the analysis report give a grade-by-grade categorization of the alignment. For example, in kindergarten 86 percent of the Montana ELE matched the CCSS. A further look at the degree of alignment is as follows:

- 42% of the CCSS are excellent matches to the Montana ELE;
- 26% of the CCSS are good matches to the Montana ELE;
- 18% of the CCSS are weak matches to the Montana ELE; and
- 14% of the CCSS are no match to the Montana ELE.

The Achieve report contains two summary tables. Table 1 gives a total of the CCSS standards and the degree of alignment by the number of standards. For example in the Grade 11-12 band there are 78 standards total. Eighty-three percent are matched by the Montana ELE.

- 8 standards are excellent matches to the Montana ELE
- 53 are good matches to the Montana ELE
- 4 are weak matches to the Montana ELE
- 13 have no match within the Montana ELE

Table 2 contains the number of standards within the CCSS by strand.

Grade 5 of the CCSS has 85 total standards:

- 9 Reading for Literature;
- 10 Reading for Informational Text;
- 6 Reading for Foundational Skills;
- 26 Writing;
- 10 Speaking and Listening; and
- 24 Language.

In conclusion, the Achieve Gap Analysis indicates there is good alignment of the CCSS and the Montana ELE. Many of the CCSS that do not have a match within the Montana ELE are written more explicitly than the Montana ELE. For example, there is no match in first grade to CCSS Reading Foundational Skills Standard 2, 2a, and 2b:

> Demonstrate understanding of spoken words, syllables, and sounds (phonemes).
>
> a. Distinguish long from short vowel sounds in spoken single-syllable words.
>
> b. Orally produce single-syllable words by blending sounds (phonemes), including consonant blends.

The Montana document contains these skills; however it is implied rather than explicitly stated as in the CCSS.

Mathematics

The Mathematics Achieve Report outlines the findings of the alignment team (Appendix B). The team determined that 90 percent of the 440 CCSS (exclusion of the 55 "+" high school science, technology, engineering, mathematics (STEM) standards) match the Montana ELE.

The team determined 81 percent of the 495 CCSS (inclusion of the 55 "+" high school science, technology, engineering, mathematics (STEM) standards and Mathematical Practices) matched the Montana ELE.

A deeper look to examine the strength of the matches between the 495 CCSS and the Montana ELE is as follows:

- 26% of the CCSS are excellent matches to the Montana ELE;
- 35% of the CCSS are good matches to the Montana ELE;
- 21% of the CCSS are weak matches to the Montana ELE; and
- 19% of the CCSS have no match to the Montana ELE. The 19 percent no match reflects the fact Montana has 54 high school ELE and CCSS has 190 high school standards.

A deeper look to examine the strength of the matches between the 440 CCSS and the Montana ELE (excludes 55 "+" standards in high school, Non "+") is as follows:

- 28% of the CCSS are excellent matches to the Montana ELE;
- 38% of the CCSS are good matches to the Montana ELE;
- 23% of the CCSS are weak matches to the Montana ELE; and
- 10% of the CCSS have no match to the Montana ELE.

The **"How do Montana standards compare to the Common Core at each grade K-8?"** graph gives a grade-by-grade categorization of the alignment.

- 9% of Montana grade 6 ELE and 3% of Montana grade 8 ELE had no match to CCSS;
- all other grades had a match to CCSS;
- Excellent matches range from 58%, Grade 2, to 12%, Grade 8;
- Good matches range from 76%, Kindergarten, to 30%, grade 6; and
- Weak matches range from 45%, Grade 8, to 3%, Grade 3.

The report includes three graphs examining the high school matches because high school is compared using 135 Non "+" standards for all students to be college and career ready as well as a comparison of the 55 "+" standards.

- 30% of the 135 Non "+" high school standards had no match;
- 43% of the 135 Non "+" high school standards had an excellent to good match;
- 87% of the 55 "+" high school standards had no match; and
- 9% of the 55 "+" high school standards had an excellent to good match.

The final graph showing grade-level differences represents where the K-8 grade level similarities and differences are between Montana ELE and CCSS. This graph indicates there is a different grade level progression between the CCSS and Montana ELE in grades 2 through 8.

- The highest percent of CCSS addressed at the same grade level is 75% at Grade 8
- The lowest percent of CCSS addressed at the same grade level is 57% at Grade 6
- The highest percent of CCSS addressed after Montana ELE is 21% at Grade 2
- Grades 2-8 have CCSS addressed after Montana ELE with the highest percent at Grade 2, 21%
- The percent of CCSS addressed before Montana ELE ranges from 56% at Grade 1 and 18% at Grade 4

In conclusion, the Montana ELE is a good to excellent match with the CCSS. The percent of the CCSS addressed before and after Montana ELE provide differences for each grade level between the two documents. This information presents what standards remain at each grade level and what standards move to a different grade level. Taking into consideration the CCSS are written using explicit mathematical language with precise detail, the matches are valuable in providing clear expectations at each grade level and across the grade bands. For example, standards for probability and statistics do not start until grade 6 and are applied in high school. The additional expectations in high school for all students to be career and college ready, as well as STEM prepared, creates the greatest disparity in matches even when the 55 "+" standards were not considered. Through the close examination of the results, the information included in the Achieve report confirms the alignment team's findings.

Content maps created through the Surveys of Enacted Curriculum (SEC) show a comparison between Montana's Content Standards and the Common Core State Standards. The SEC maps are created to illustrate the content of the standards based on the knowledge and skills within the standards document and the level of cognitive demand to which the students must apply the knowledge and skills. Cognitive demand is the instructional expectation the teacher has for the student.

The contour maps are read like topographical maps. The "altitude" on the map indicates the expected instructional time based on the content within the documents. The white areas indicate little or no content at the given level of cognitive demand. The darker colors represent an increased amount of instructional time. The placement of the colored areas on the x-axis indicates the cognitive demand of the standards.

The map also indicates the coarse grain alignment or fine grain alignment of the standards shown on the upper-right corner of the map. The alignment is a comparison made between the two content matrices. The coarse grain maps are generated from the topics within a content area. For example, in English Language Arts, a topic on a coarse grain map is vocabulary. On a fine grain chart under the topic of vocabulary are the subtopics of compound words and contractions, inflection forms, word origins, analogies, etc.

The University of Wisconsin-Madison considers a coarse grain alignment of 0.50 and a fine grain alignment of 0.25 as good alignment. The greater the alignment number above these thresholds, the stronger the alignment.

Communication Arts

The English Language Arts Content map (Appendix C) for grade four has the CCSS on the left and the Montana benchmarks on the right. The CCSS in grade four focus on the knowledge and skills of critical reasoning, elements of presentation, writing applications and language study. Speaking and presenting also appears on the map as a focus, but not as much instructional time should be spent within this area compared to the topics previously listed. Montana has a large emphasis in comprehension, elements of presentation and speaking and presenting.

The Montana benchmarks have a content emphasis in the areas of comprehension, elements of presentation (verbal and written), and speaking and presenting. All of these content areas are in the cognitive domain of perform procedures/explain and generate/create demonstrate. The CCSS focuses on critical reasoning and writing applications in the analyze/investigate level of cognitive demand. Language study is in the perform procedures/explain level of cognitive demand.

The English Language Arts Content map (Appendix D) for grade eight has the CCSS on the left and the Montana benchmarks on the right.

The Montana benchmarks have a content emphasis in the areas of comprehension, elements of presentation (written and verbal), and speaking and presenting. The level of cognitive demand for the three is generate/create/demonstrate. The CCSS focuses on vocabulary, critical reasoning, elements of presentation, writing applications, language study and speaking and presenting. The level of cognitive demand is the same as the Montana benchmarks generate/create/demonstrate with the exception of critical reasoning, which is at the level of analyze/investigate.

A fine grain map, for writing applications (Appendix E), is included for grade 8. The CCSS are on the left and the Montana benchmarks are on the right. The fine grain map shows a more explicit illustration of the knowledge and skills within the coarse grain maps. The Montana benchmarks, under "writing applications," focus on technical writing with some instruction in expressive writing, both at the generate/create/demonstrate level of cognitive demand. The CCSS emphasizes narrative, expository, and persuasive writing with some instruction in technical writing all at the same level of cognitive demand as Montana.

The final English Language Arts Content map (Appendix F) displays CCSS grades 9-12 on the left and Montana grade 12 benchmarks on the right. The Montana benchmarks have a content emphasis in the areas of comprehension, elements of presentation (verbal and written), and listening and viewing. Elements of presentation are at the generate/create/demonstrate level of cognitive demand. The other two are in the analyze/investigate level of cognitive demand. The CCSS focuses on critical reasoning at the analyze/investigate level of cognitive demand. Additional areas of focus are elements of presentation (verbal and written) and language study with some emphasis on writing applications and speaking and presenting all at the generate/create/demonstrate level of cognitive demand.

Mathematics

The grade four Mathematics Content map (Appendix G) shows the CCSS on the left and the Montana benchmarks on the right. Both the Montana benchmarks and the CCSS have a content emphasis in the areas of number and operations. The difference is CCSS's focus on operations has a depth of study in a broader range of cognitive demand (from perform procedures to prove). Another difference is that Montana includes geometry, statistics, and probability at an introductory level.

A fine grain map in grade four specifically deals with data displays (Appendix H). The CCSS is on the left and the Montana benchmarks are on the right. The fine grain map shows a more explicit illustration of the knowledge and skills within the coarse grain maps. The CCSS under "data displays," focus on line plots (not line graphs) at the perform procedures level of cognitive demand. The Montana benchmark has a general emphasis on tables, bar graphs, pictographs, stem and leaf plots, as well as line plots at the perform procedures level of cognitive demand.

Looking from the grade four Mathematics Content map to the grade eight Mathematics Content map (Appendix I), notice that CCSS content focus moves away from number and operations to algebra, geometry, and functions. Montana continues to focus on number and operations as well as algebra, geometry, statistics and instructional technology. Montana's level of cognitive demand has a broader

range from perform to prove; while CCSS has the level of cognitive demand from perform procedures to make connections only in the area of algebra and geometry.

Grades 9-12 Mathematics Content map (Appendix J) displays CCSS on the left and Montana grade 12 benchmarks on the right. Both CCSS and Montana benchmarks include all content areas. Montana benchmarks have a strong emphasis on advanced geometry. The CCSS have a strong emphasis on algebra and functions. Statistics and probability are finally seen on the CCSS map which is noticeable when looking at grade four, grade eight, and grades 9-12 together. The progression for CCSS shifts from number to algebra. The progression for Montana encompasses all content areas with a focus on number in K-4 and geometry in 9-12. Therefore, Montana has the highest level of cognitive demand, solve non-routine problems and make connections at 9-12. The CCSS level of cognitive demand focuses on perform procedures and demonstrate understanding.

Conclusion

This comprehensive examination of the Common Core State Standards in comparison with the Montana Standards following a three part process including out-of-state content experts, the gap analysis completed by Montana educators, and the Survey of Enacted Curriculum. This process provides evidence that the Montana Standards and the Common Core State Standards are aligned to a degree that will allow educators who effectively implement the standards to successfully educate Montana students.

Communication Arts

The examination of the evidence from this three-part process confirmed that the Montana Communication Arts standards do align with the Common Core State Standards. The CCSS is more explicit, Montana more implied, in the knowledge and skills a student must have in the learning progression. The Montana Communication Arts Standards have benchmarks that are specific to Media Literacy; the CCSS interweaves Media Literacy within the document. The CCSS contains a strand that addresses language; Montana does not have the depth of knowledge and skills in this area. Neither document suggests how the skills should be taught; that decision is left for the district, school and/or teacher.

A concern of the analysis overall is the lack of cultural context within the CCSS. Therefore, it will be necessary to convene an expert panel of educators in both content and Indian Education to add culturally relevant content to the CCSS.

The Reading Standards for Literacy in History/Social Studies, Science, and Technical Subjects in grades 6-12 place needed expectations for literacy across the content areas. These standards are the responsibility of the content area teacher and would be an overall benefit for student achievement in literacy. The Montana Communication Arts Standards currently do not address literacy within the content areas.

Mathematics

The examination of the evidence from this three-part process confirmed that the Montana Mathematics standards do align with the Common Core State Standards. The only point of concern is the exclusion of relevant cultural context in the CCSS. Therefore, it will be necessary to convene an expert panel of educators in both content and Indian Education to add culturally relevant content to the CCSS.

Although the Montana standards statements are more implied and the CCSS are more explicit, the primary difference is the mathematics learning progression. Montana standards progress from kindergarten through high school in all four standards (number sense, data analysis, geometric reasoning, and algebraic and functional reasoning). The Montana progression takes into account that each grade level has a specific content focus which builds students' understanding in all four areas along the K-12 continuum. The CCSS progress from the content area of number in kindergarten through grade 5 to algebra and statistics in high school. The CCSS progression takes into account the need for fewer standards by focusing on only one or two content areas per grade band (e.g., whole number in K-3). Therefore, implementing either Montana Standards or the CCSS will provide the learning students need throughout K-12.

Appendix A- Communication Arts, Achieve Gap Analysis Report

Achieve designed the Common Core Comparison Tool; the data are the result of judgments made by the members of the state analysis team which was a group of K-20 Communication Arts and Mathematics educators from across the state. The following report has been generated by Achieve using the Montana data.

Achieving the COMMON CORE

English Language Arts Findings

Intended for audiences such as district leaders, teachers, content experts, and other close advisors to the standards development process in your state.

A Comparison of the Montana English Language Arts Standards to the Common Core State Standards in English Language Arts & Literacy in History/Social Studies, Science and Technical Subjects

Introduction

The Common Core State Standards Initiative began in 2009, when 48 states, 2 territories and the District of Columbia signed a memorandum of agreement with the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA) and committed to a state-led process to establish a single set of clear educational standards for English-language arts and mathematics that states can share and voluntarily adopt. These standards are designed to ensure that students graduating from high school are prepared to go to college or enter the workforce and that parents, teachers, and students have a clear understanding of what is expected of them. The standards are benchmarked to international standards to guarantee that students are competitive in the emerging global marketplace.

The Common Core Comparison Tool, designed by Achieve, provides an online process and guidelines for matching the state's current standards with the Common Core Standards. The state has completed a comparison of your English Language Arts (ELA) standards with the Common Core State Standards in English Language Arts & Literacy in History/Social Studies, Science and Technical Subjects. Please note that while Achieve designed the Common Core Comparison Tool; the data are the result of judgments made by the members of the team within your state who completed the process. This summary report highlights key findings from the comparison they conducted and provides guiding questions to help interpret your results. We hope these data will be helpful as you consider the adoption and implementation of the Common Core State Standards.

(1) What percentage of the Common Core Standards matched with the Montana ELA Standards?

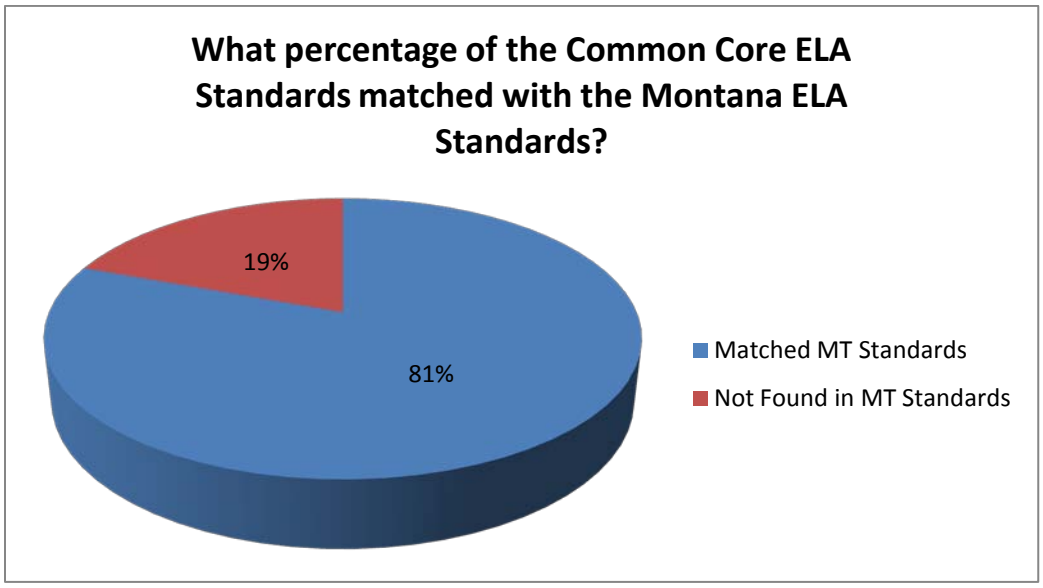


Chart Reads: Your state team rated 81% of the K-12 Common Core Standards as having a match to your state standards. Your state team determined that 19% of the K-12 Common Core Standards had no match to your state standards. *Note: The denominator does NOT include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects.*

It is important to take a deeper look at these matches and examine the strength of the match (excellent, good, weak) in various strands and at various grade levels. It is also important to look closely at the Common Core content that is not matched by your state standards. Consider what the implications are for classroom instruction, professional development, and curriculum materials in your state. Detailed lists of the Common Core Standards that were not matched to your state's standards are available and will be helpful in determining next steps with respect to adoption and implementation.

(2) How did we rate our state's degree of match with the Common Core? What percentage of the Common Core standards has no match to our state's ELA standards?

Your state rated the degree of match according to the following scale:

Table 1: Ratings Summary

3 = **Excellent match** between the state standards and the Common Core
2 = **Good match**, with minor aspects of the Common Core not addressed
1 = **Weak match**, with major aspects of the Common Core not address
No Match = There is **no state match** with the Common Core standard

Overall, your team rated the Common Core matches as follows: 26% were an excellent match to your state standards, 38% were a good match to your state standards, and 16% were a weak match to your state standards. 19% of the Common Core State Standards in English Language Arts were identified as having no match to your state standards.

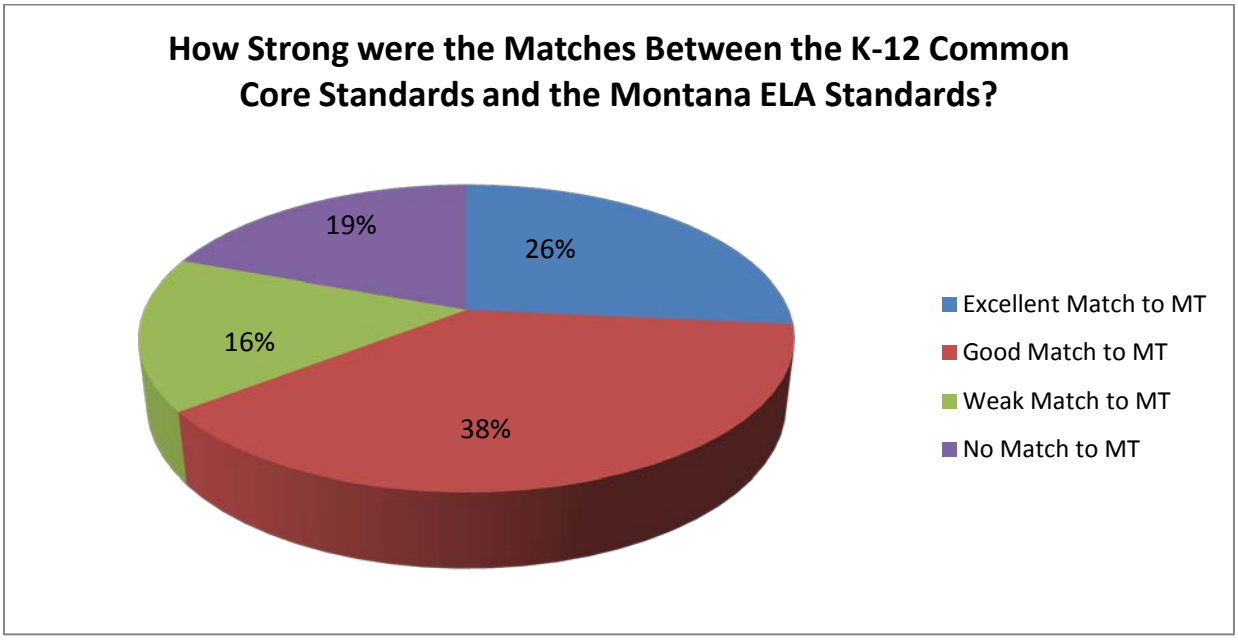


Chart Reads: Your state team rated 26% of the Common Core Standards as an excellent match to your state standards. *Note: The denominator does NOT include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects.*

It is also important to look closely at the Common Core content that is not matched by your state standards. Consider what the implications are for transitioning to the Common Core and the impact on teacher training and professional development.

(3a) How do the Common Core compare to our state ELA standards at the K-5, 6-8, and 9-12 grade bands?

For ease of analysis when using this tool, the Common Core State Standards in English Language Arts & Literacy in History/Social Studies, Science and Technical Subjects are organized into 3 grade bands: elementary (K-5), middle school (6-8) and high school (9-12).

A. Of the **Common Core elementary standards (K-5)**, your team rated 33% an excellent match, 27% a good match, and 16% a weak match to your state standards. 23% of the Common Core elementary standards were identified as having no match in your state standards.

B. Of the **Common Core middle school standards (6-8)**, your team rated 15% an excellent match, 61% a good match, and 10% a weak match to your state standards. 14% of the Common Core middle school standards were identified as having no match in your state standards.

C. Of the **Common Core high school standards (9-12)**, your team rated 22% an excellent match, 38% a good match, and 10% a weak match to your state standards. 14% of the Common Core high school standards were identified as having no match in your state standards.

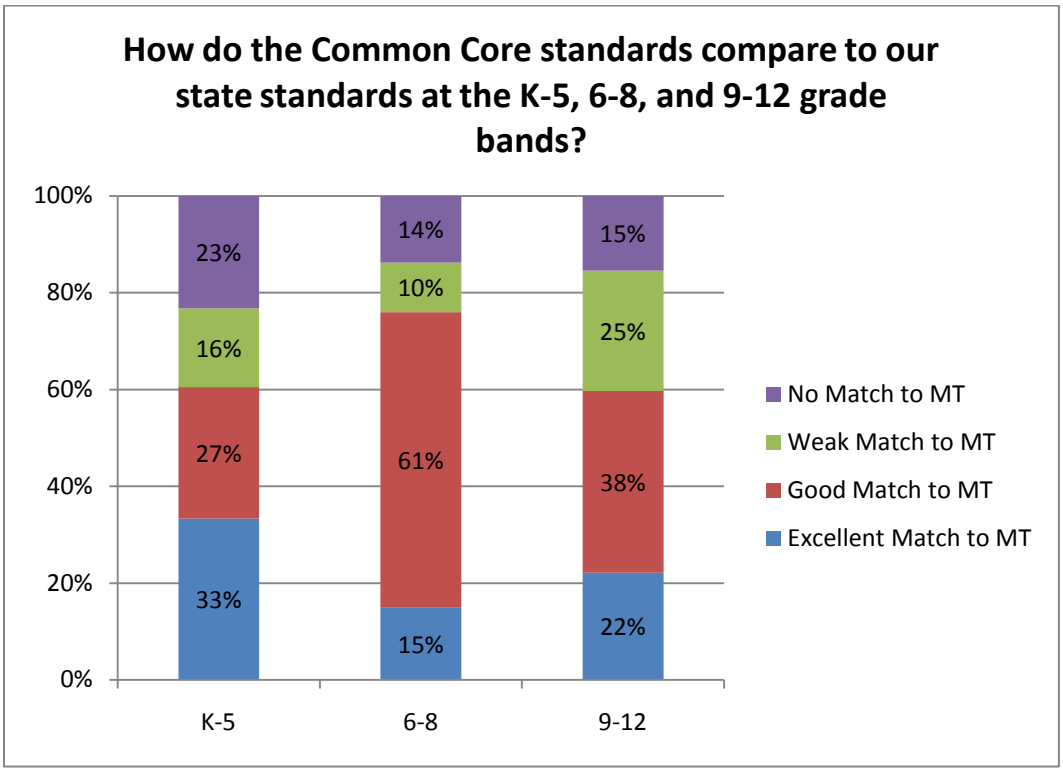


Chart Reads: Of the Common Core elementary standards (K-5), your team rated 33% an excellent match, 27% a good match, and 16% a weak match to your state's ELA standards with 23% having no match. Of the Common Core standards (6-8), your team rated 15% an excellent match…etc. *Note: The denominator does NOT include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects.*

(3b) How do the Common Core ELA standards compare to our state at each grade?

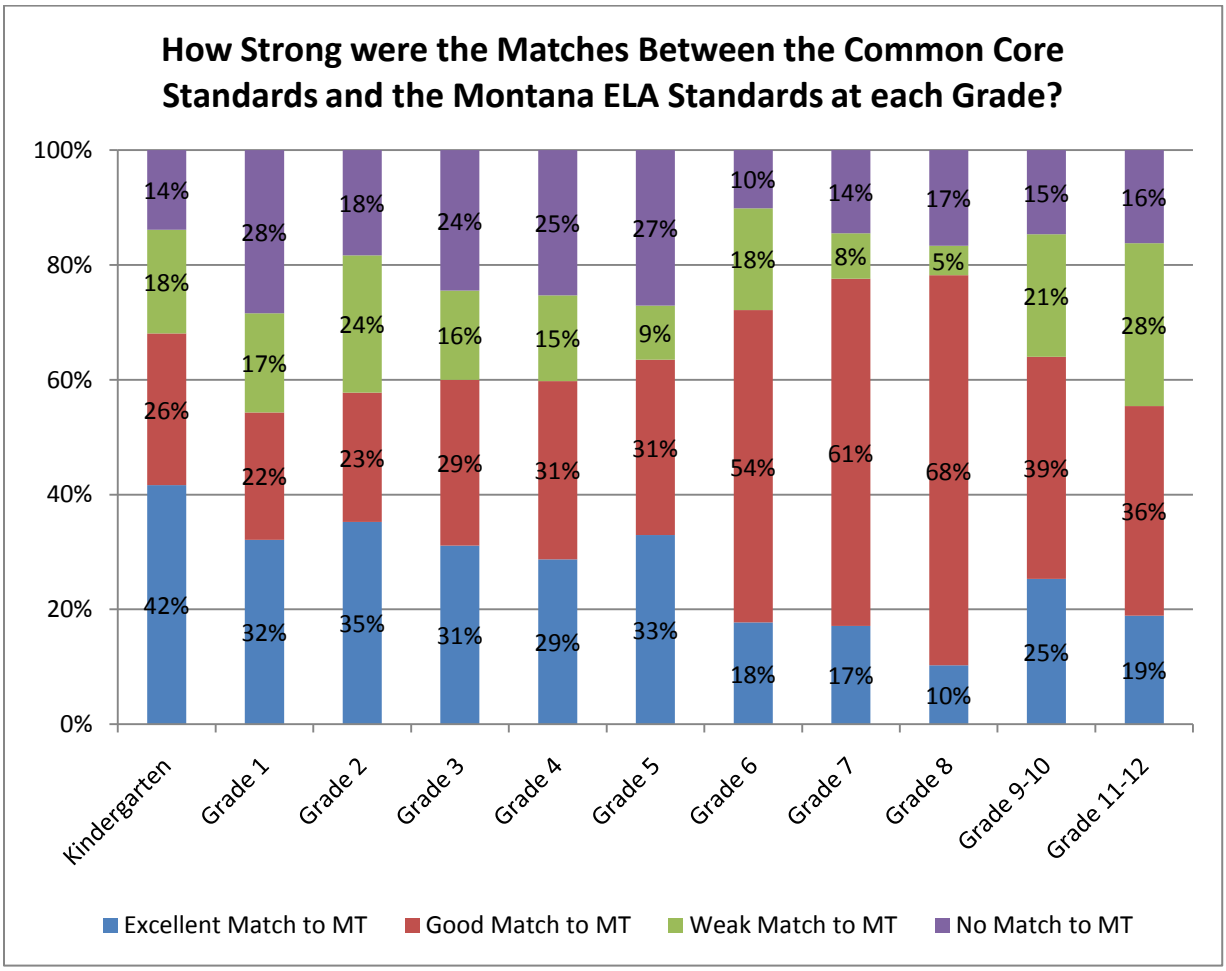


Chart Reads: In Kindergarten your team rated 42% of the Common Core Standards as having an excellent match, 26% a good match, and 18% a weak match to your state's ELA standards with 14% having no match. Of the Common Core standards in 1st grade, your team rated 32% an excellent match…etc. *Note: The denominator does NOT include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects.*

(3c) What percentage of the Common Core Standards were matched – at any level – to the Montana standards?

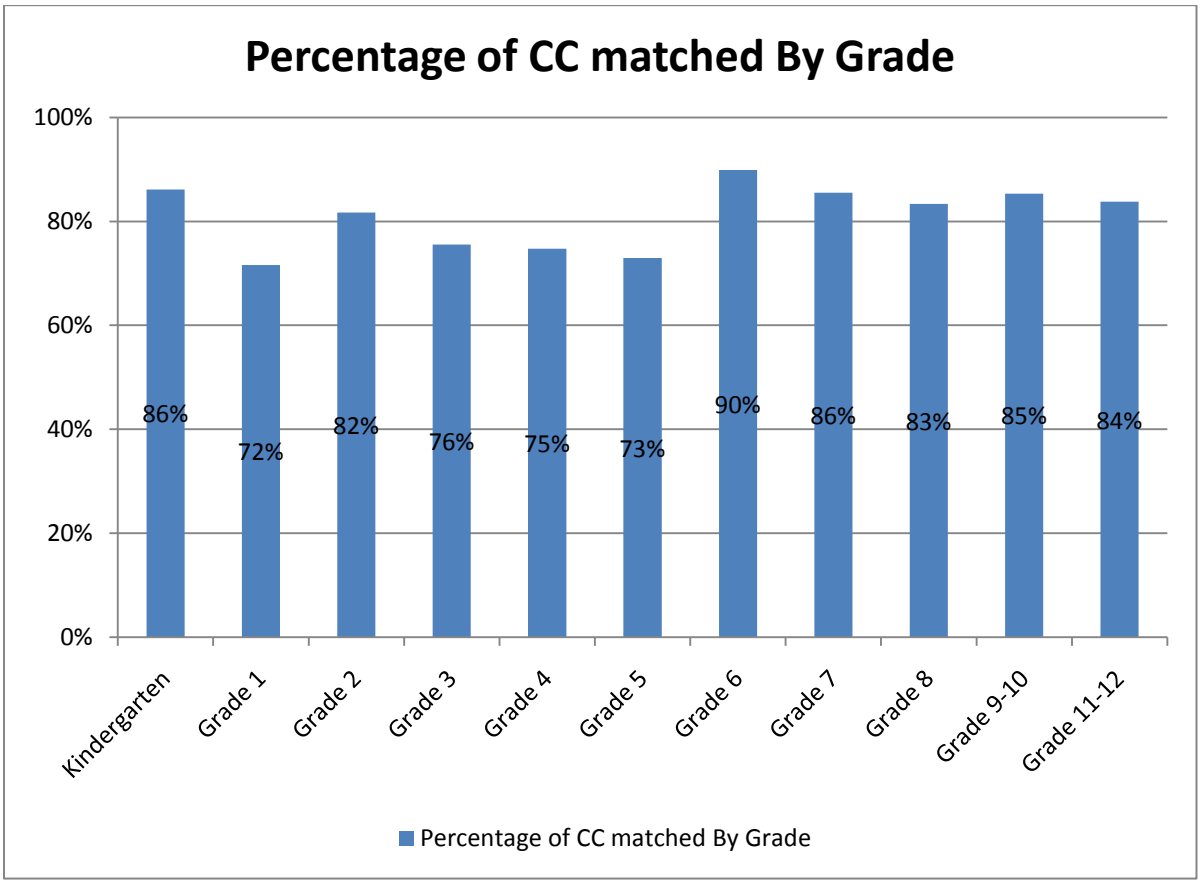


Chart Reads: In Kindergarten your team matched 86% of the Common Core Standards to a Montana standard.
Note: The denominator does NOT include the College and Career Readiness Anchor Standards or the 6-12 Standards in Literacy in History/Social Studies, Science and Technical Subjects.

Summary Tables

ACHIEVE NOTE: Due to the variable number of standards at each grade, strand, subset, etc., you might find it helpful to include frequencies (the number of standards) along with percentages when presenting your data. The below table provides the denominators for each strand and grade as well as the CCR Anchors.

Table 1

Grade/ Grade Band	Total # of Common Core standards at grade level	% of Common Core matched	Excellent Match to State XX (# of 3s)	Good Match to State XX (# of 2s)	Weak Match to State XX (# of 1s)	# of non-matched standards
Grand Total K-12 (includes 32 CCR Anchors and Literacy in History, Science, and Technology standards)	868	81%	230	330	140	168
Kindergarten	72	86%	30	19	13	10
Grade 1	81	72%	26	18	14	23
Grade 2	71	82%	25	16	17	13
Grade 3	90	76%	28	26	14	22
Grade 4	87	75%	25	27	13	22
Grade 5	85	73%	28	26	8	23
Grade 6	79	90%	14	43	14	8
Grade 7	76	86%	13	46	6	11
Grade 8	78	83%	8	53	4	13
Grade 9-10	76	86%	13	46	6	11
Grade 11-12	78	83%	8	53	4	13

Table 2

Grade/ Grade Band	Totals	Reading for Literature (RL)	Reading for Informational Text (RI)	Reading for Foundational Skills (RF)	Writing (W)	Speaking and Listening (SL)	Language (L)	Reading Literacy in Science and Technical Subjects 6-12 (RST)	Reading for Literacy in History/Social Studies 6-12 (RH)	Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects 6-12 (WHST)
Kindergarten	72	9	10	17	7	8	21	N/A	N/A	N/A
Grade 1	81	9	10	19	7	9	27	N/A	N/A	N/A
Grade 2	71	9	10	11	7	9	25	N/A	N/A	N/A
Grade 3	90	9	10	9	21	10	31	N/A	N/A	N/A
Grade 4	87	9	10	6	26	10	26	N/A	N/A	N/A
Grade 5	85	9	10	6	26	10	24	N/A	N/A	N/A
Grade 6	79	9	10	N/A	28	10	22	N/A	N/A	N/A
Grade 7	76	9	10	N/A	28	10	19	N/A	N/A	N/A
Grade 8	78	9	10	N/A	28	10	21	N/A	N/A	N/A
Grade 6-8	40	N/A	N/A	N/A	N/A	N/A	N/A	10	10	20
Grade 9-10	115	9	10	N/A	28	10	18	10	10	20
Grade 11-12	113	9	10	N/A	28	10	17	10	10	19
CCR Anchors	32	10			10	6	6	N/A	N/A	N/A

ELA-specific data

Total number of ELA and Literacy in History, Science, and Technology standards = 1019
Total number of ELA standards (includes CCR Anchor Standards) = 900
Total number of Literacy in History, Science, and Technology Standards = 119
Total number of College and Career-Readiness Anchor Standards = 32

Conclusion and Next Steps

We hope the Common Core Comparison Tool and this report has helped you better understand how the Common Core State Standards in English Language Arts & Literacy in History/Social Studies, Science and Technical Subjects compare with the current expectations your state has for its students and helps better inform your thinking about adoption and implementation of the Common Core.

To help analyze the results of your comparison, Achieve has developed an Implementation Guide. Along with the report, these companion pieces are meant to help you think about implementation and the implications for curriculum, instruction, professional development, and assessments. In addition to the reports and the Implementation Guide, Achieve has produced a set of *Achieving the Common Core* materials to help make the case for the Common Core in your state and to support states with adoption and implementation of the Common Core. See http://www.achieve.org/achievingcommoncore

Appendix B- Mathematics, Achieve Gap Analysis Report

Achieve designed the Common Core Comparison Tool; the data are the result of judgments made by the members of the state analysis team which was a group of K-20 Communication Arts and Mathematics educators from across the state. The following report has been generated by Achieve using the Montana data.

A Comparison of the Montana's Mathematics Standards to the Common Core State Standards in Mathematics

Introduction

The Common Core State Standards Initiative began in 2009, when 48 states, 2 territories and the District of Columbia signed a memorandum of agreement with the Council of Chief State School Officers (CCSSO) and the National Governors Association (NGA) and committed to a state-led process to establish a single set of clear educational standards for English-language arts and mathematics that states can share and voluntarily adopt. These standards are designed to ensure that students graduating from high school are prepared to go to college or enter the workforce and that parents, teachers, and students have a clear understanding of what is expected of them. The standards are benchmarked to international standards to guarantee that students are competitive in the emerging global marketplace.

The Common Core Comparison Tool, designed by Achieve, provides an online process and guidelines for matching the state's current standards with the Common Core Standards. The state has completed a comparison of your Math standards with the Common Core State Standards in Math. Please note that while Achieve designed the Common Core Comparison Tool; the data are the result of judgments made by the members of the team within your state who completed the process. This summary report highlights key findings from the comparison they conducted and provides guiding questions to help interpret your results. We hope these data will be helpful as you consider the adoption and implementation of the Common Core State Standards.

(1a) What percentage of the Common Core Math standards appear in the Montana Standards? What percentage of the Common Core MATH standards had no match to our state standards?

Overall, your team matched 81% of the Common Core MATH standards to your state's MATH standards. For the remaining 19% of the Common Core, there was no identified match. These unmatched standards address content and/or performance expectations that your team identified as not included in the Montana standards. For a list of these unmatched standards, download the "By CCSS" Side-by-Side Comparison spreadsheet and choose the "No Matches" tab.

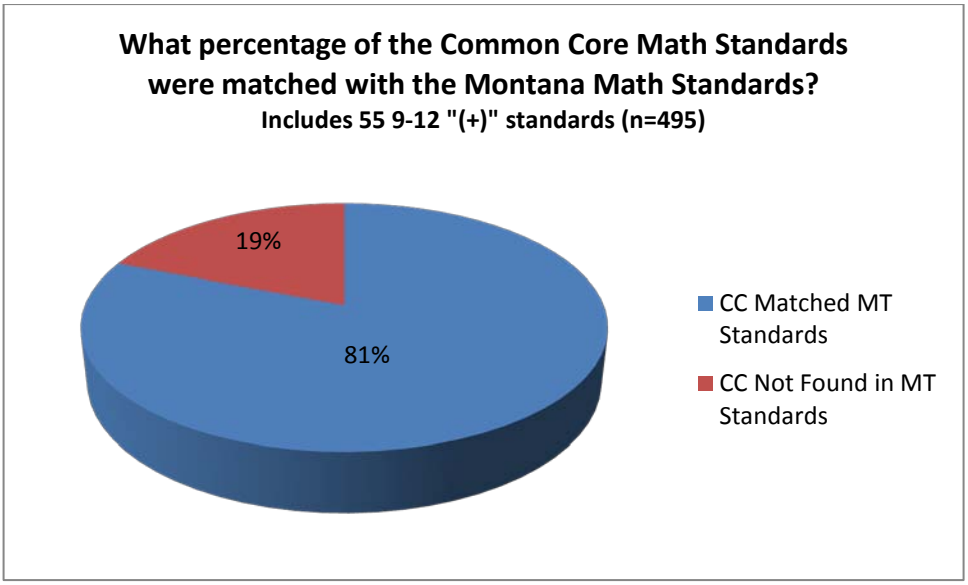


Chart Reads: 81% of the Common Core MATH standards were matched to MT's standards. Your team determined that the remaining 19% of the Common Core standards had no match to your state standards. Note – the denominator for this data point is the 495 Common Core Standards (including the Mathematical Practices).

While 81% of the Common Core MATH standards were matched to your state's standards, it is important to take a deeper look at these matches and examine the strength of the match (excellent, good, weak), as well as differences across grade span or grade level. Consider particular grade-level differences and where your state standards might be introduced before or after the same content in the Common Core. These differences will have implications for classroom instruction, professional development, and curriculum materials in your state.

It is also important to look closely at the Common Core standards for which there was no match in your state as these content and performances will be new upon adoption of the Common Core. Think about what that might mean for adoption and implementation. Consider what the implications are for transitioning to the Common Core and the impact on teacher training and professional development.

(1b) What percentage of the Common Core Math standards (excluding the "+" standards") appear in the Montana Standards? What percentage of the Common Core MATH standards had no match to our state standards?

If looking exclusively at the 440 standards required for all students as does the chart below, the percentage of CCSS matched standards increases to 90%.

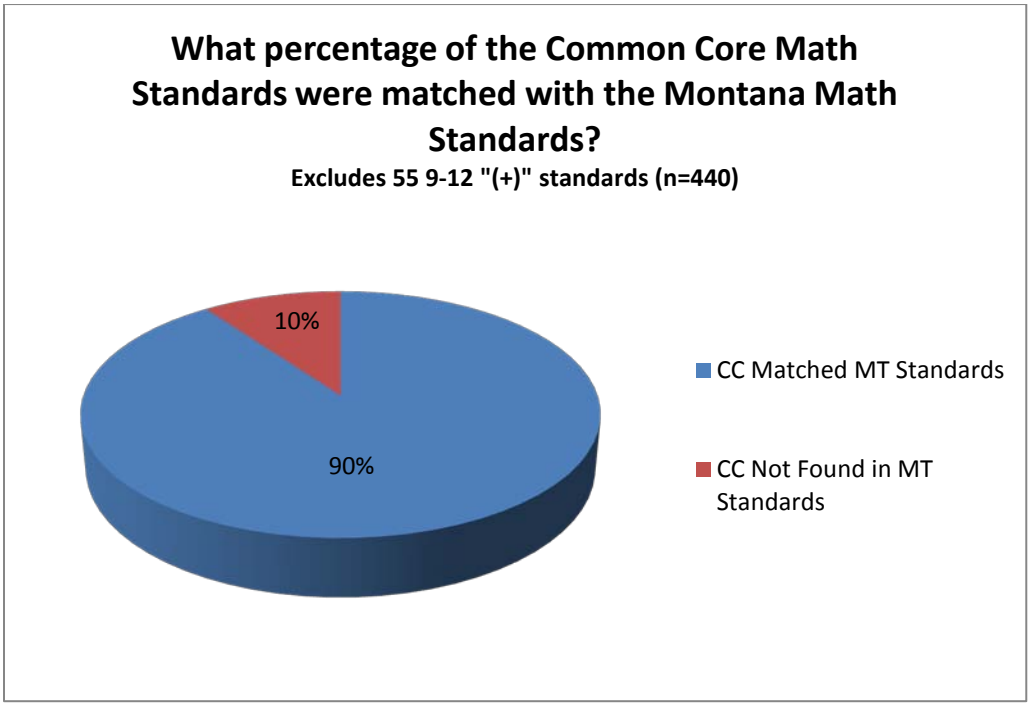


Chart Reads: 90% of the Common Core MATH standards were matched to MT's standards. Your team determined that the remaining 10% of the Common Core standards had no match to your state standards. Note – the denominator for this data point is the 440 Common Core Standards and excludes the 55 "+" standards in grades 9-12.

(2) What percentage of the Montana Math standards appear in the Common Core? For what percentage was there no match between our state's Math standards and the Common Core?

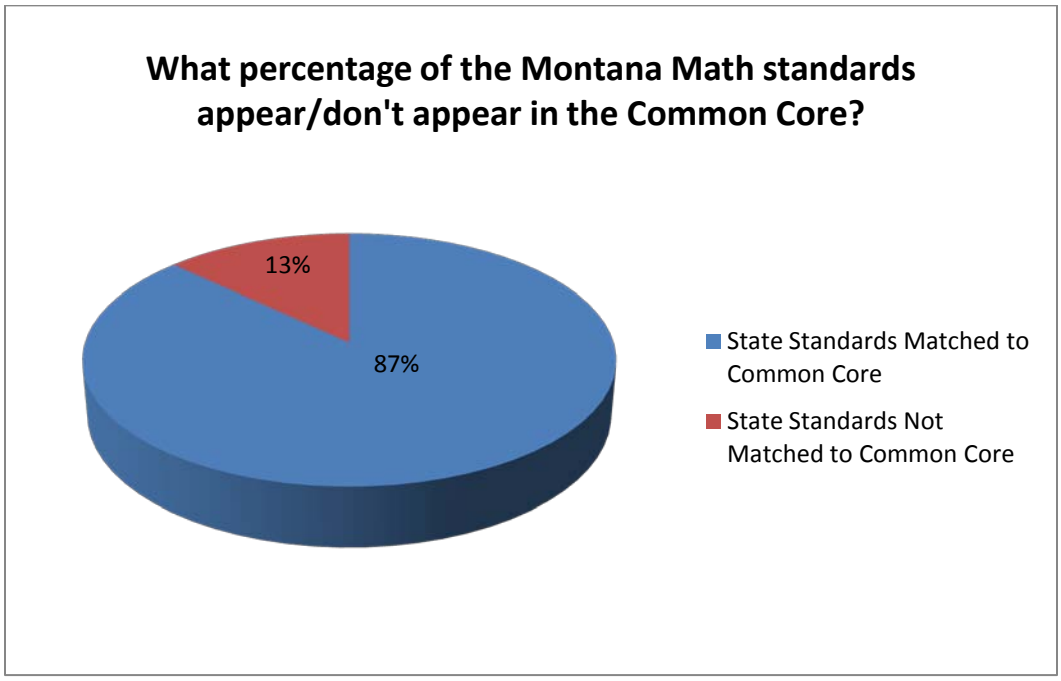


Chart Reads: 87% of Montana's K-12 math standards were matched to the Common Core. For the remaining 13% of Montana math standards, your team identified no match to the Common Core Math Standards. Note – the denominator for this data point is the total number of K-12 Montana Standards (n=375).

(3a) How did we rate our state's degree of match with the Common Core? What percentage of the Common Core standards has no match to Montana's MATH standards?

Your state rated the degree of match according to the following scale:

Table 1: Ratings Summary

3 = **Excellent match** between the state standards and the Common Core
2 = **Good match**, with minor aspects of the Common Core not addressed
1 = **Weak match**, with major aspects of the Common Core not address
No Match = There is **no state match** with the Common Core standard

Overall, your team rated the Common Core matches as follows: 26% (n=128) were an excellent match to your state standards, 35% (n=171) were a good match to your state standards, and 21% (n=102) were a weak match to your state standards. 19% (n=94) of the Common Core State Standards in Math were identified as having no match to your state standards.

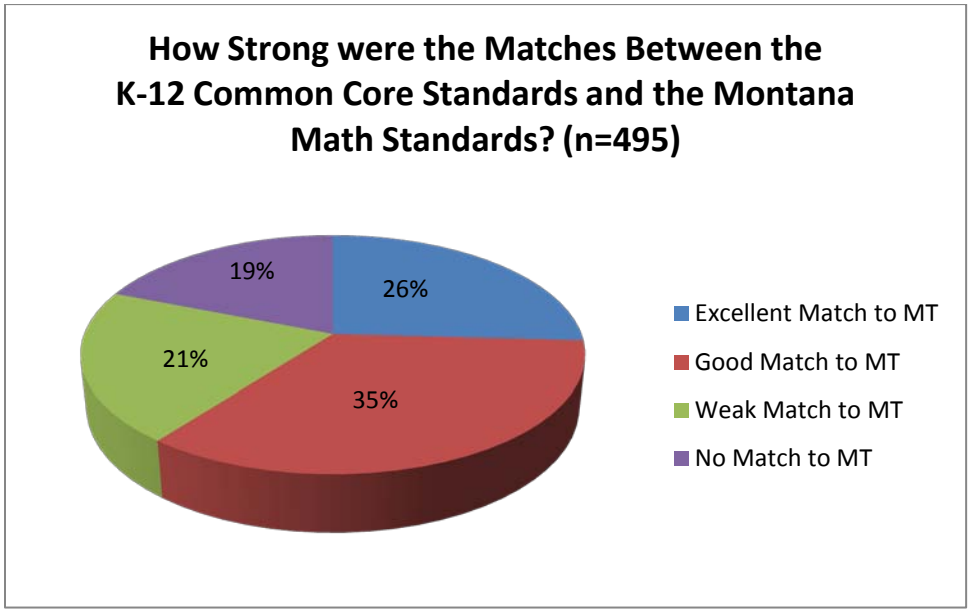


Chart Reads: Your state team rated 26% of the Common Core Math Standards as an excellent match to your state standards. Note – the denominator for this data point is the total number of Common Core Standards (n=495).

It is important to take a deeper look at these matches and examine the strength of the match (excellent, good, weak) in various strands and at various grade levels. It is also important to look closely at the Common Core content that is not matched by your state standards. Consider what the implications are for classroom instruction, professional development, and curriculum materials in your state. Detailed lists of the Common Core Standards that were not matched to your state's standards are available through the Common Core Comparison Tool and will be helpful in determining next steps with respect to adoption and implementation.

(3b) How did we rate our state's degree of match with the Common Core (excluding the "+" standards")? What percentage of the Common Core standards has no match to Montana's MATH standards?

If looking exclusively at the 440 standards required for all students as does the chart below, the overall data around strength of the matches improves:

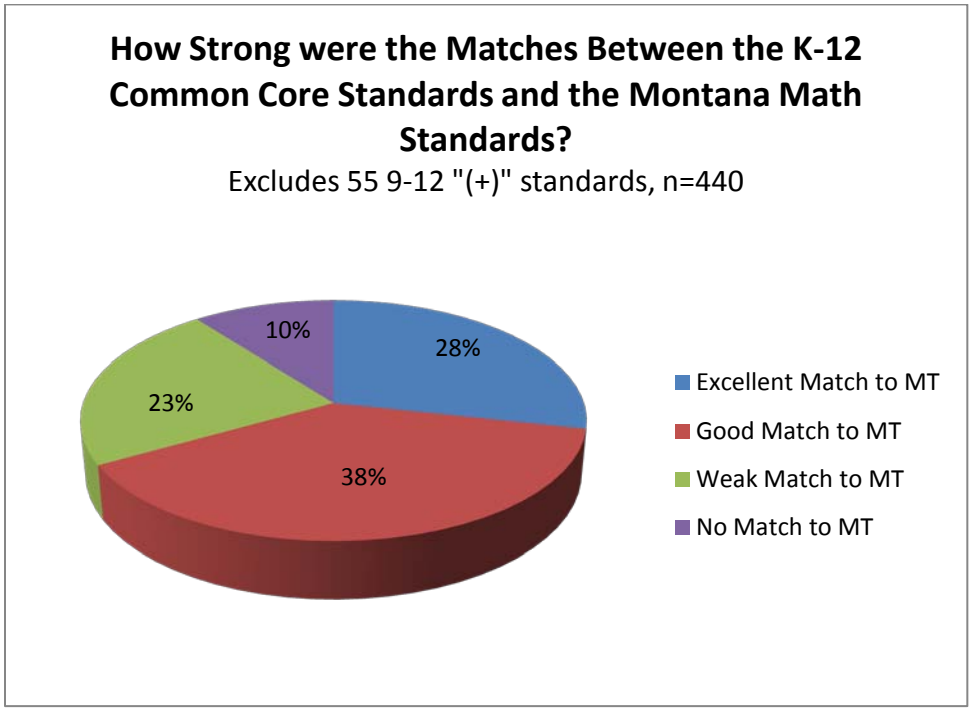


Chart Reads: Your state team rated 28% of the Common Core Math Standards as an excellent match to your state standards. Note – the denominator for this data point is the 440 Common Core Standards and excludes the 55 "+" standards in grades 9-12.

(4) How do our state Math standards compare to the Common Core at each grade at the elementary and middle school levels (K-8)?

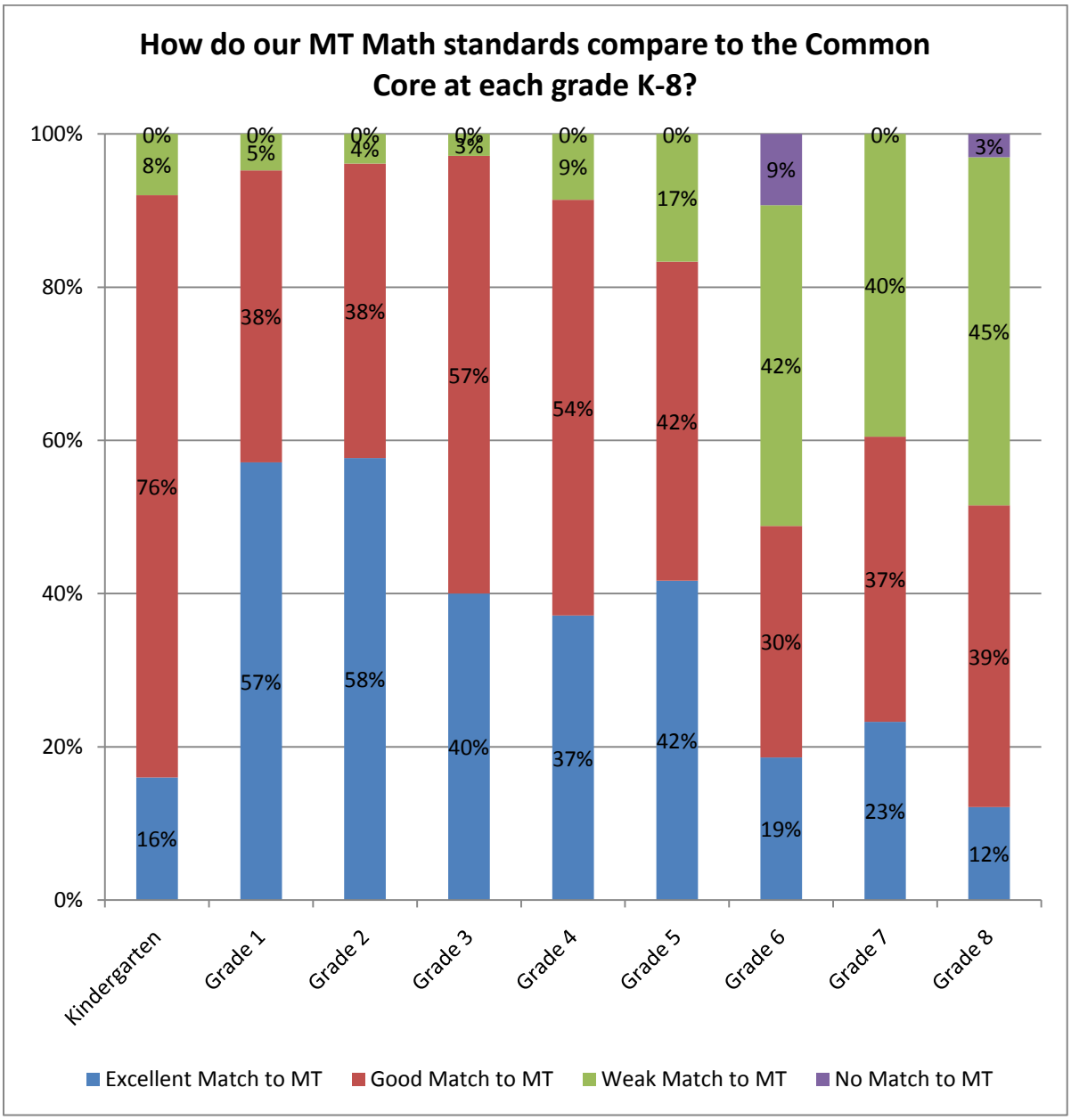


Chart Reads: Of the Common Core math standards in Kindergarten, your team rated 16% an excellent match, 76% a good match, and 8% a weak match to your state's Math standards. There were no Common Core Standards in Kindergarten that you found lacked a match in MT. Of the Common Core standards in Grade 1, your team rated 57% an excellent match…etc. Note – the denominator for this data point is ALL of the K-8 Common Core Standards (n=297). See page 10 for individual grade denominators.

(5) How do our state Math standards compare to the Common Core at the secondary level?

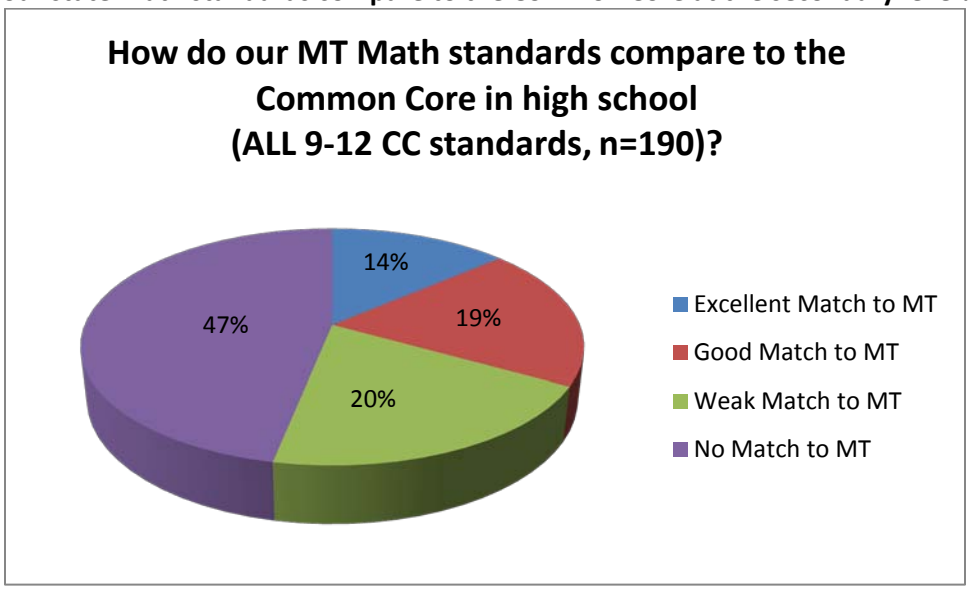


Chart Reads: For ALL the Common Core math standards in high school, your team rated 14% an excellent match, 19% a good match, and 20% a weak match to your state's Math standards. 47% of the Common Core high school math standards did not have a match in Montana's standards. Note – the denominator for this data point is ALL of the 9-12 Common Core Standards (n=190). See below for the disaggregated 9-12 data.

5a : Non "+" subset of Chart 5 (n=135)

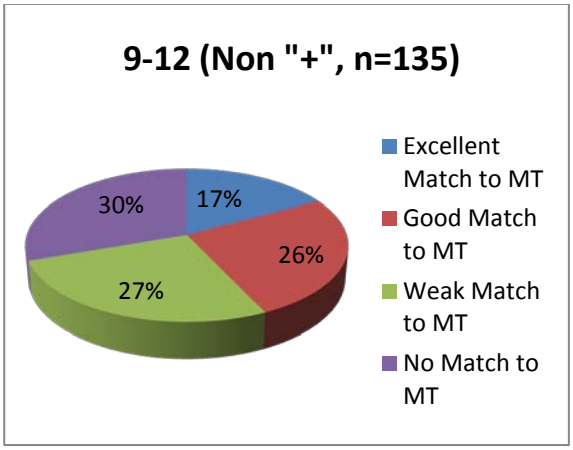


Chart Reads: 17% of the 9-12 non "+" high school Common Core Standards were rated an excellent match to the MT high school standards, 26% good match, etc. (n=135)

5b: ("+") subset of Chart 5 (n=55)

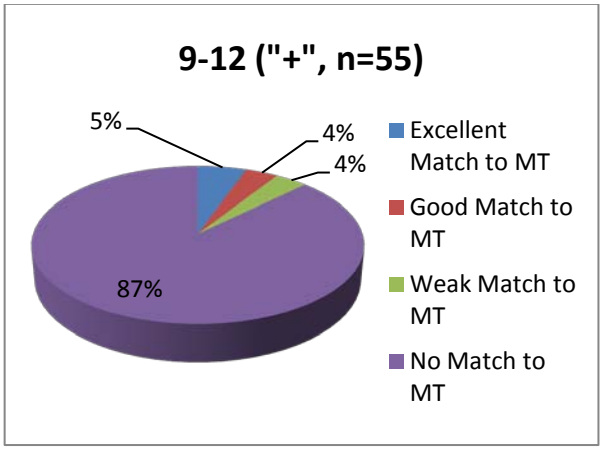


Chart Reads: 5% of the 9-12 "+" standards were rated an excellent match to the MT high school standards, 4% a good match, etc. (n=55)

(6) How similar were the grade levels between the Montana Math standards and the Common Core standards?

The following top-level summary indicates the percentages of matched standards that include content at the same grade levels. Differences in grade level content may have implications for the curriculum and instruction in your state. Please note, the denominator is the number of *matched State standards*.

Consider particular grade-level differences and where your state standards might be introduced before or after the same content in the Common Core. These differences will have implications for classroom instruction, assessment, professional development, and use of curriculum materials in your state.

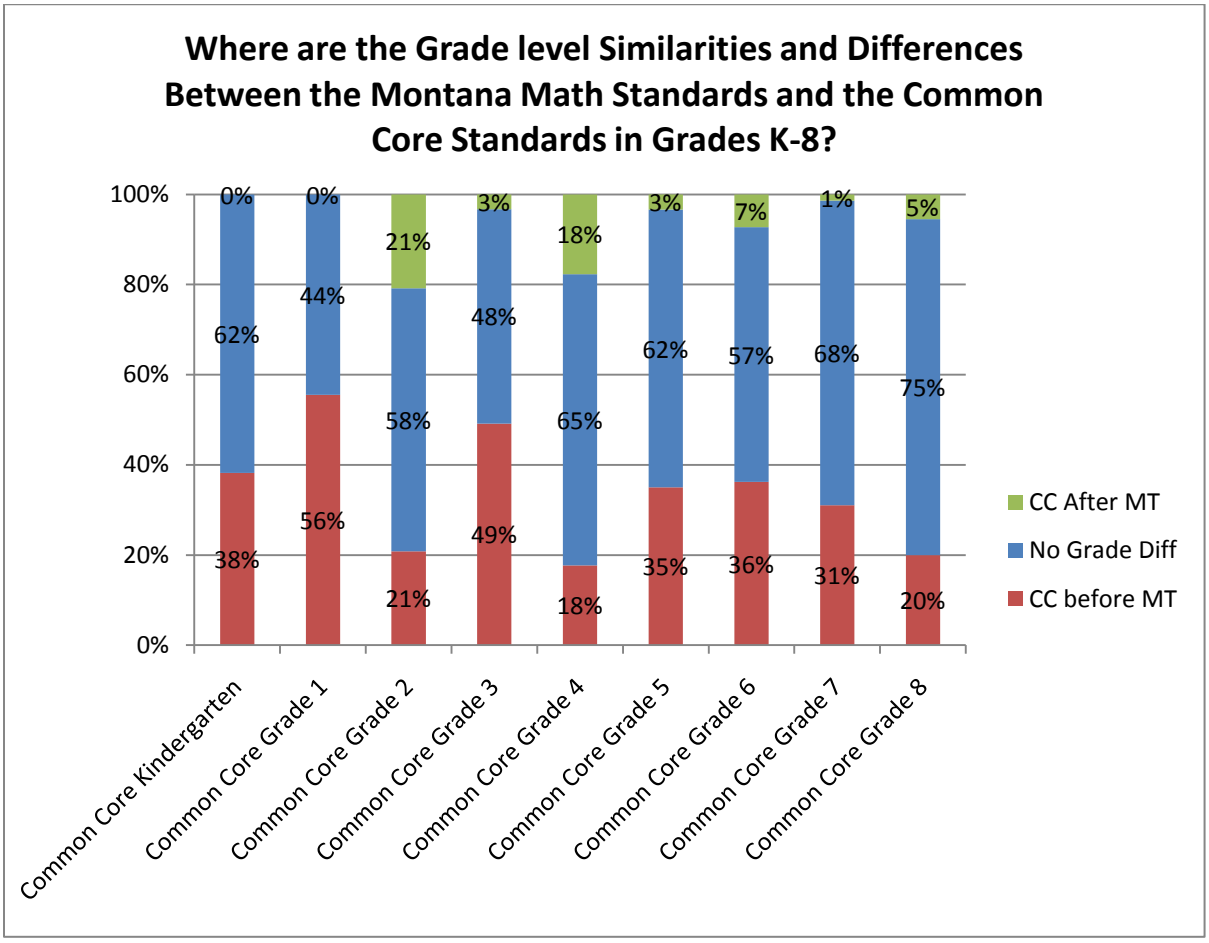


Chart Reads: In Kindergarten 62 percent of the matched standards between the Common Core and Montana were at the same grade level. 38 percent of the matched standards were instances where the Common Core included content before Montana in Kindergarten. There were no matched standards in Kindergarten where the Common Core included content after the Montana standards. Note – The 9-10 and 11-12 grade standards are not included because the *ranges* are less meaningful in determining grade level differences.

Common Core Math Standards Frequency Table

Grade	Total # of CC standards at grade level	Excellent Match to MT	Good Match to MT	Weak Match to MT	No Match to MT
Grand Total	495	128	171	102	94
Kindergarten	25	4	19	2	0
Grade 1	21	12	8	1	0
Grade 2	26	15	10	1	0
Grade 3	35	14	20	1	0
Grade 4	35	13	19	3	0
Grade 5	36	15	15	6	0
Grade 6	43	8	13	18	4
Grade 7	43	10	16	17	0
Grade 8	33	4	13	15	1
Grade 9-12 (Total)	190	26	37	38	89
9-12 non "+"	135	23	35	36	41
9-12 "+" standards	55	3	2	2	48

NOTE: Standards "counts" include both standards and sub-standards as they are coded in the Common Core Comparison Tool.

Appendix C- Communication Arts, Surveys of Enacted Curriculum Grade 4

English Language Arts Content

Montana

Percentage of Overall English Language Arts Instructional Time

Coarse Grain Alignment: 0.4

Administration Year: 2010
Viewing: CCSS Gr. 4 Data
Data Cut: All Data
Count: 1

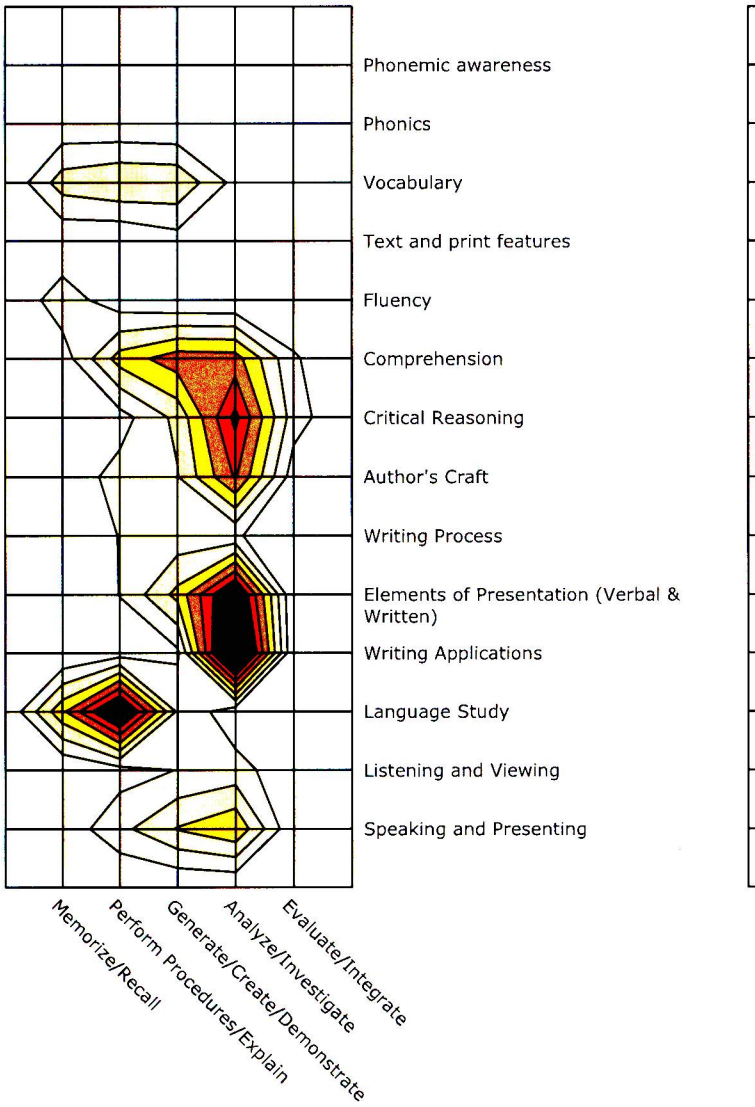
Administration Year: 2010
Viewing: MT Stnds (2010) Gr. 4 Data
Data Cut: All Data
Count: 1

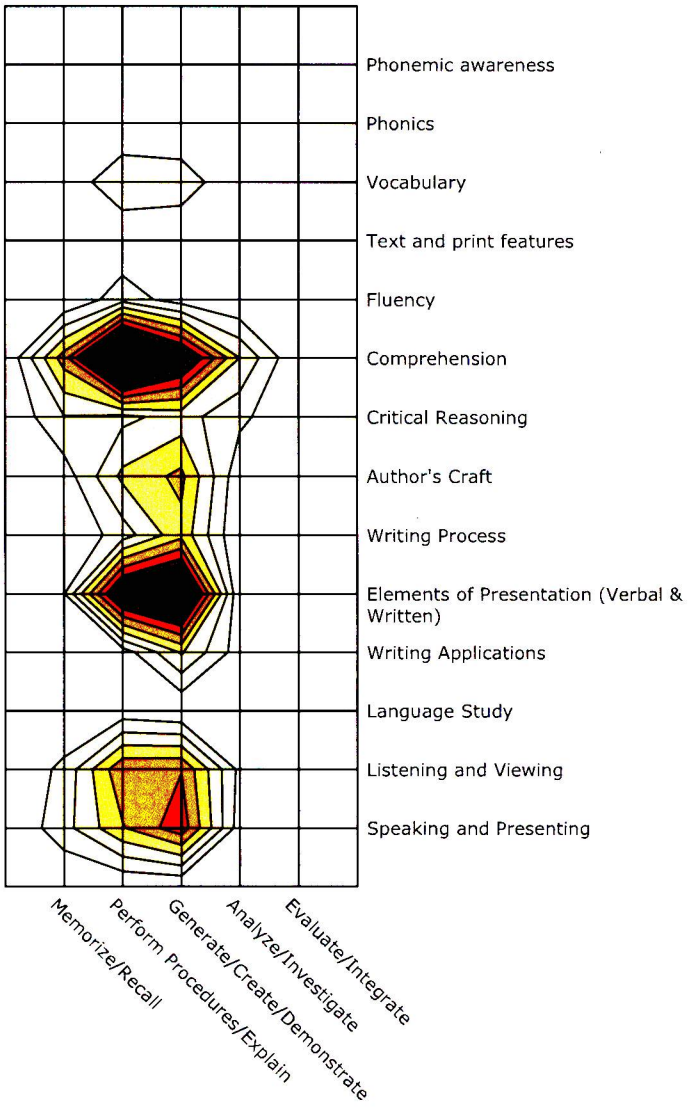
Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%





Appendix D- Communication Arts, Surveys of Enacted Curriculum Grade 8

English Language Arts Content

Montana

Percentage of Overall English Language Arts Instructional Time

Coarse Grain Alignment: 0.64

Administration Year: 2010
Viewing: CCSS Gr. 8 Data
Data Cut: All Data
Count: 1

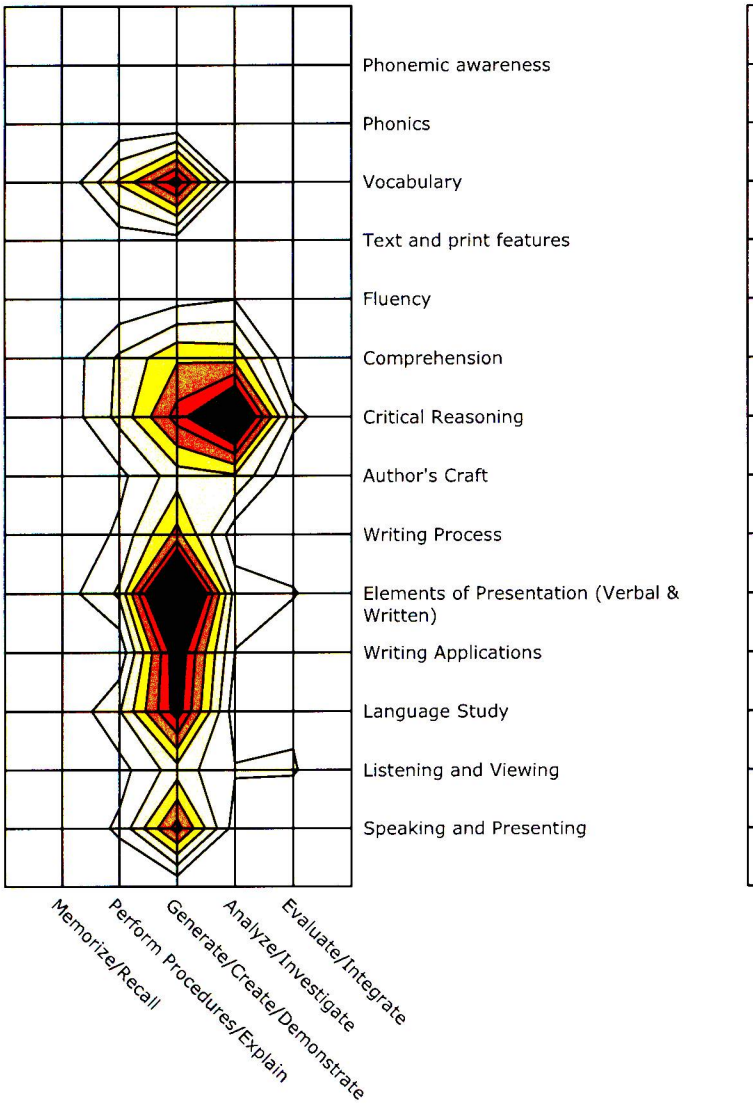
Administration Year: 2010
Viewing: MT Stnds (2010) Gr. 8 Data
Data Cut: All Data
Count: 1

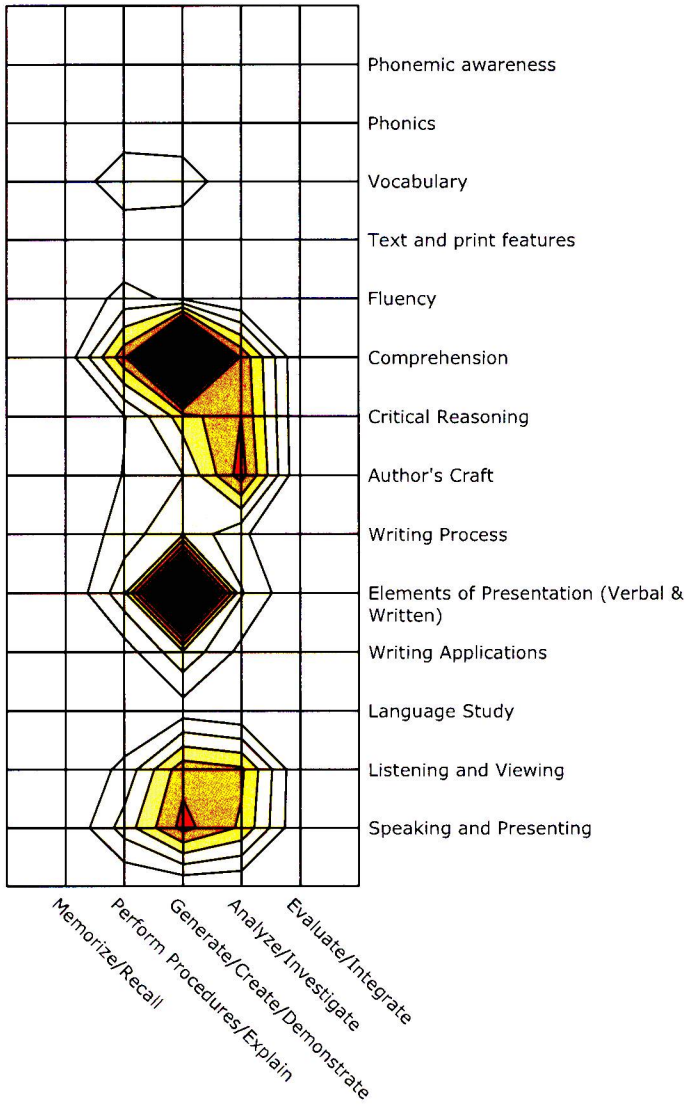
Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%





Appendix E- Communication Arts, Surveys of Enacted Curriculum Grade 8 (fine grain)

English Language Arts Content

Writing Applications

Montana

Percentage of Overall English Language Arts Instructional Time

Alignment re-centered: 0.15

Administration Year: 2010
Viewing: CCSS Gr. 8 Data
Data Cut: All Data
Count: 1

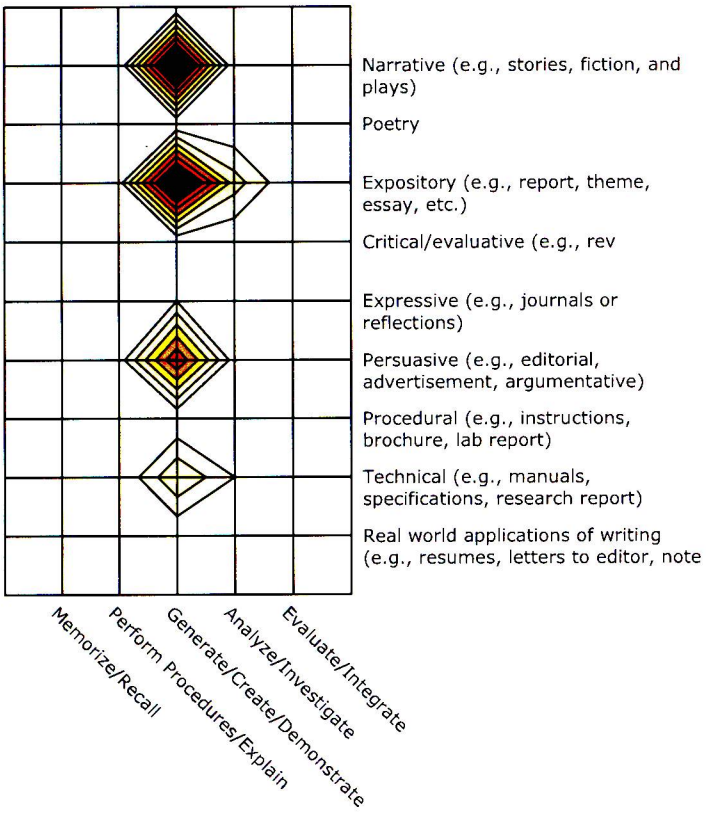
Administration Year: 2010
Viewing: MT Stnds (2010) Gr. 8 Data
Data Cut: All Data
Count: 1

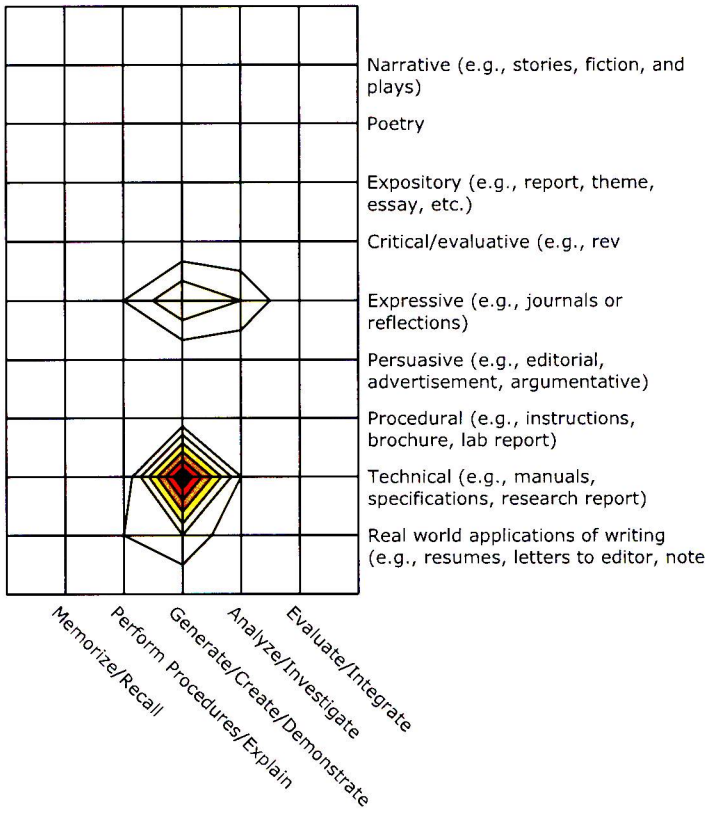
Update Maps | Return to Coarse Grair

0% - 0.19% | 0.2% - 0.39% | 0.4% - 0.59% | 0.6% - 0.79% | 0.8% - 0.99%
1% - 1.19% | 1.2% - 1.39% | 1.4% - 1.59% | 1.6% - 1.79% | 1.8% - 1.99%

Contour Interval - 0.2% of Content Coverage

Adjust Contour Interval: 0.2%





Appendix F- Communication Arts, Surveys of Enacted Curriculum Grades 9-12

English Language Arts Content

Montana

Percentage of Overall English Language Arts Instructional Time

Coarse Grain Alignment: 0.64

Administration Year: 2010
Viewing: CCSS Gr. 9_12 Data
Data Cut: All Data
Count: 1

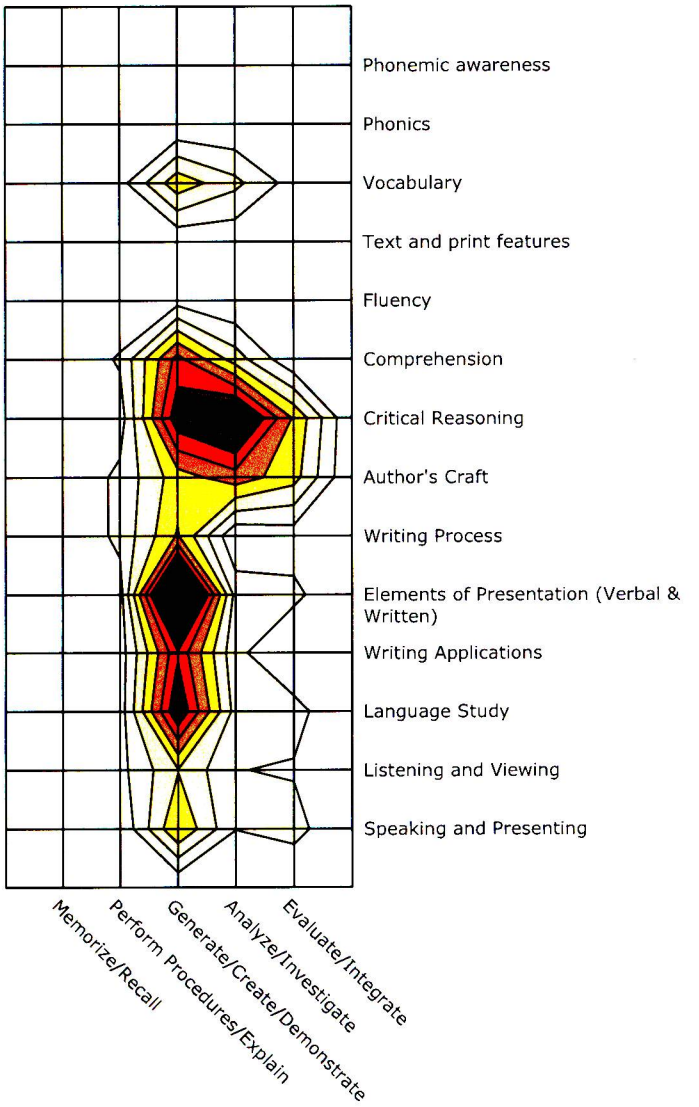
Administration Year: 2010
Viewing: MT Stnds (2010) Gr. 12 Data
Data Cut: All Data
Count: 1

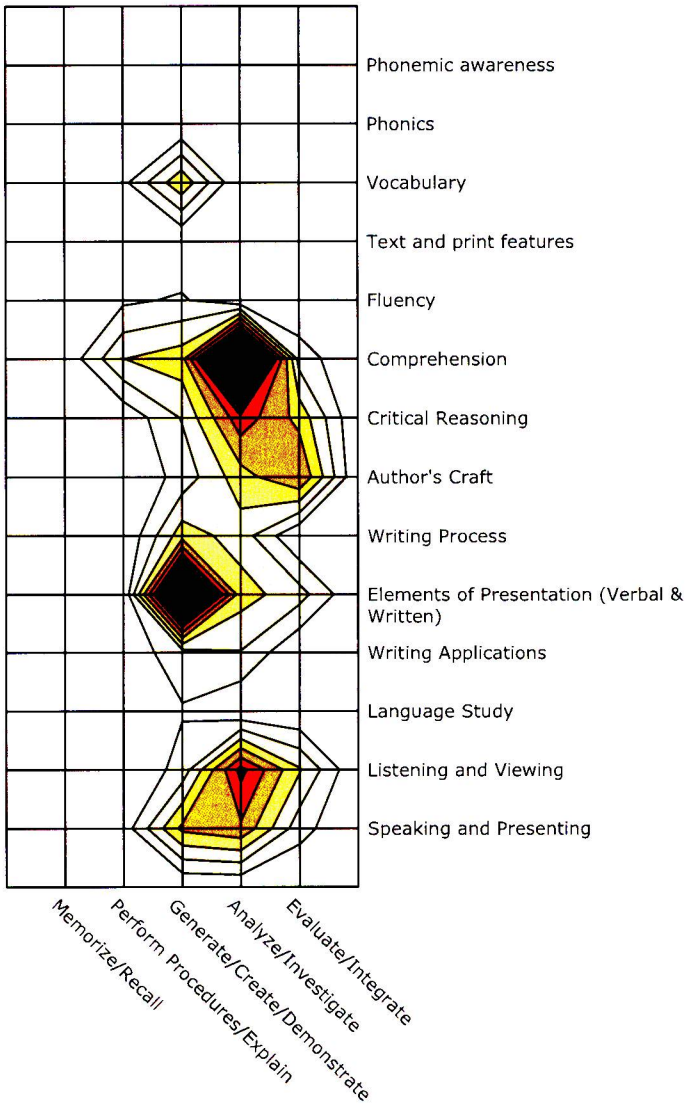
Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%





Appendix G- Mathematics, Surveys of Enacted Curriculum Grade 4

Mathematics Content

Montana

Percentage of Overall Mathematics Instructional Time

Coarse Grain Alignment: 0.52

Administration Year: 2010
Viewing: CCSS Gr. 4 Data
Data Cut: All Data
Count: 1

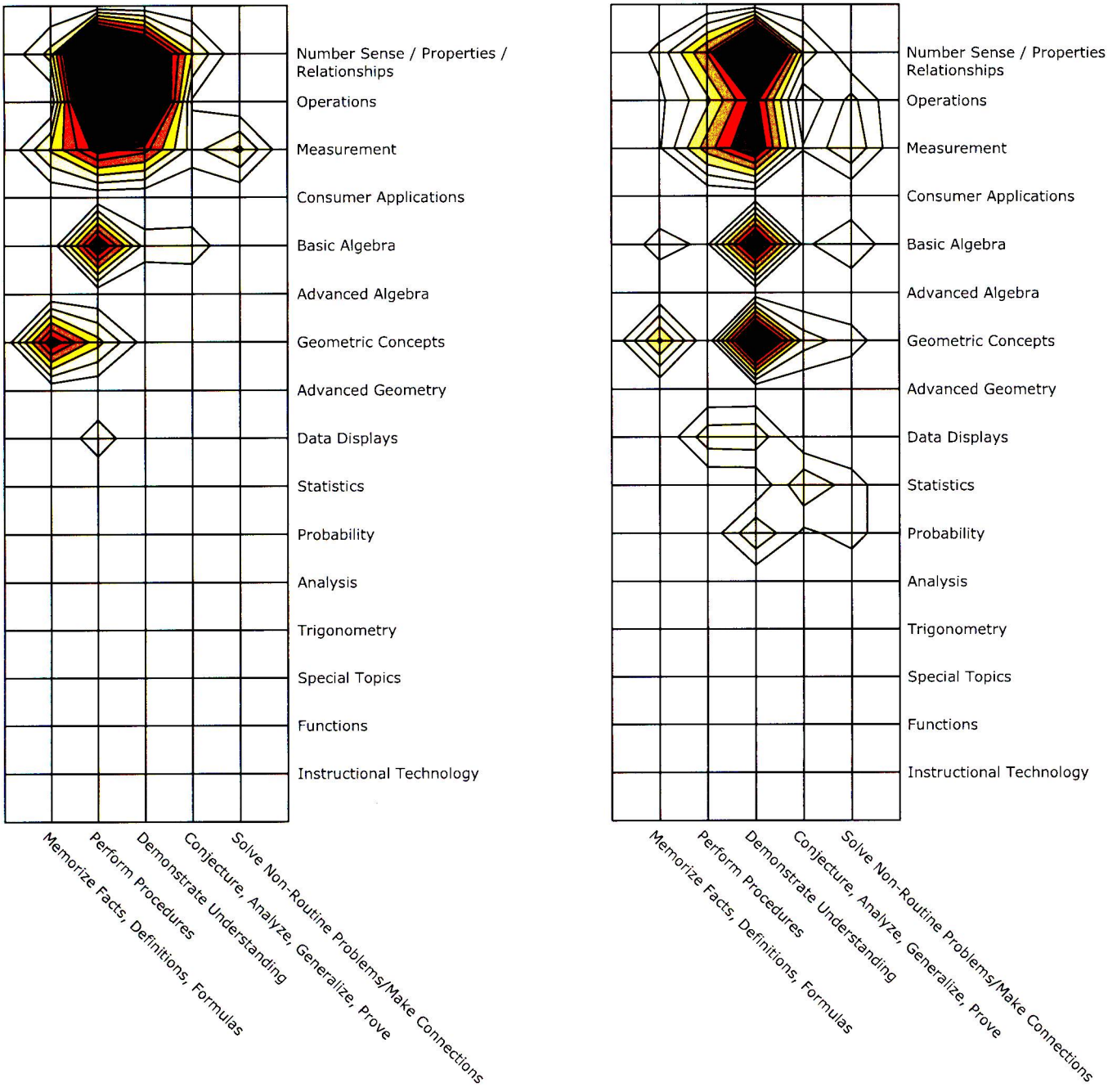
Administration Year: 2010
Viewing: MT Stnds (09) Gr. 4 Data
Data Cut: All Data
Count: 1

Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%



Appendix H- Mathematics, Surveys of Enacted Curriculum Grade 4 (fine grain)

Mathematics Content

Data Displays

Montana

Percentage of Overall Mathematics Instructional Time

Alignment re-centered: 0.1

Administration Year: 2010
Viewing: CCSS Gr. 4 Data
Data Cut: All Data
Count: 1

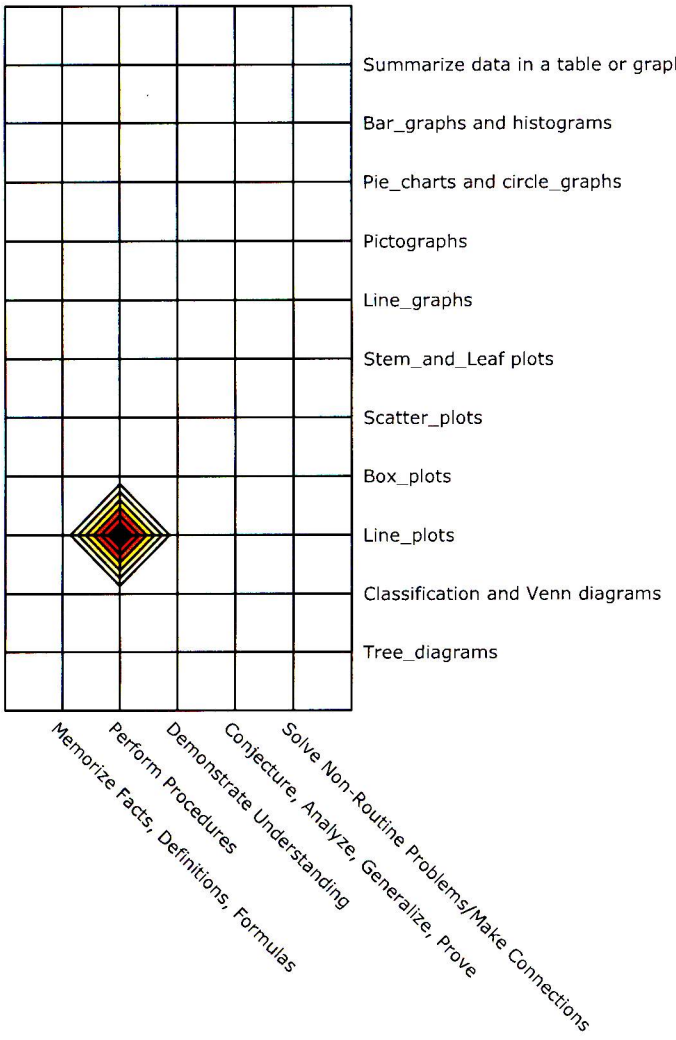
Administration Year: 2010
Viewing: MT Stnds (09) Gr. 4 Data
Data Cut: All Data
Count: 1

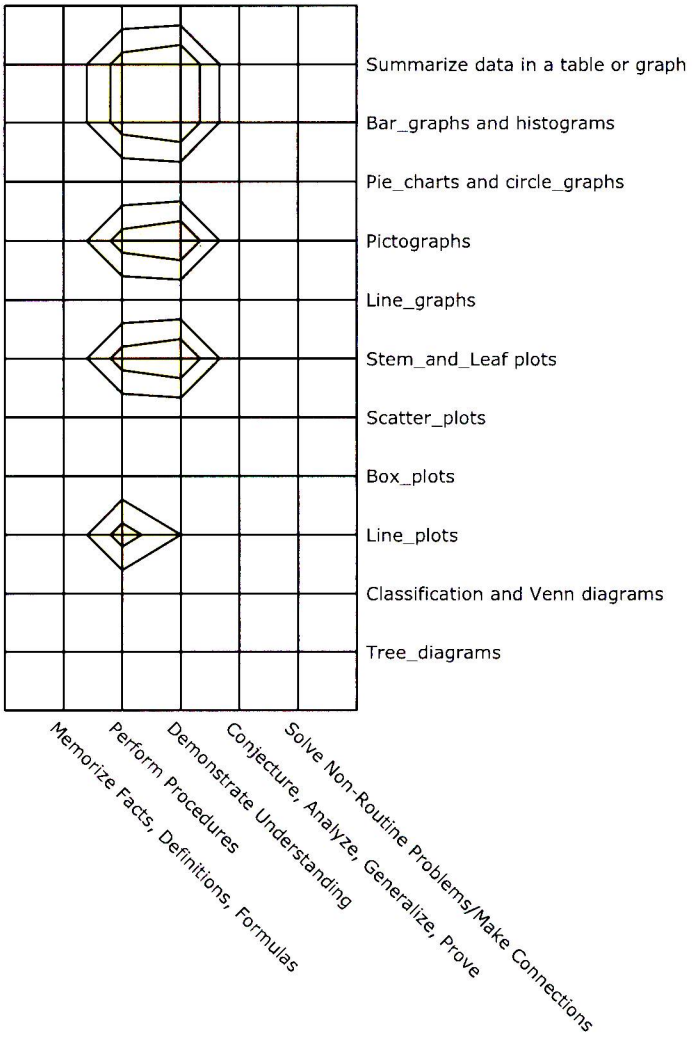
Update Maps | Return to Coarse Grain

0% - 0.19% | 0.2% - 0.39% | 0.4% - 0.59% | 0.6% - 0.79% | 0.8% - 0.99%
1% - 1.19% | 1.2% - 1.39% | 1.4% - 1.59% | 1.6% - 1.79% | 1.8% - 1.99%

Contour Interval - 0.2% of Content Coverage

Adjust Contour Interval: 0.2%





Appendix I- Mathematics, Surveys of Enacted Curriculum Grade 8

Mathematics Content

Montana

Percentage of Overall Mathematics Instructional Time

Coarse Grain Alignment: 0.45

Administration Year: 2010
Viewing: CCSS Gr. 8 Data
Data Cut: All Data
Count: 1

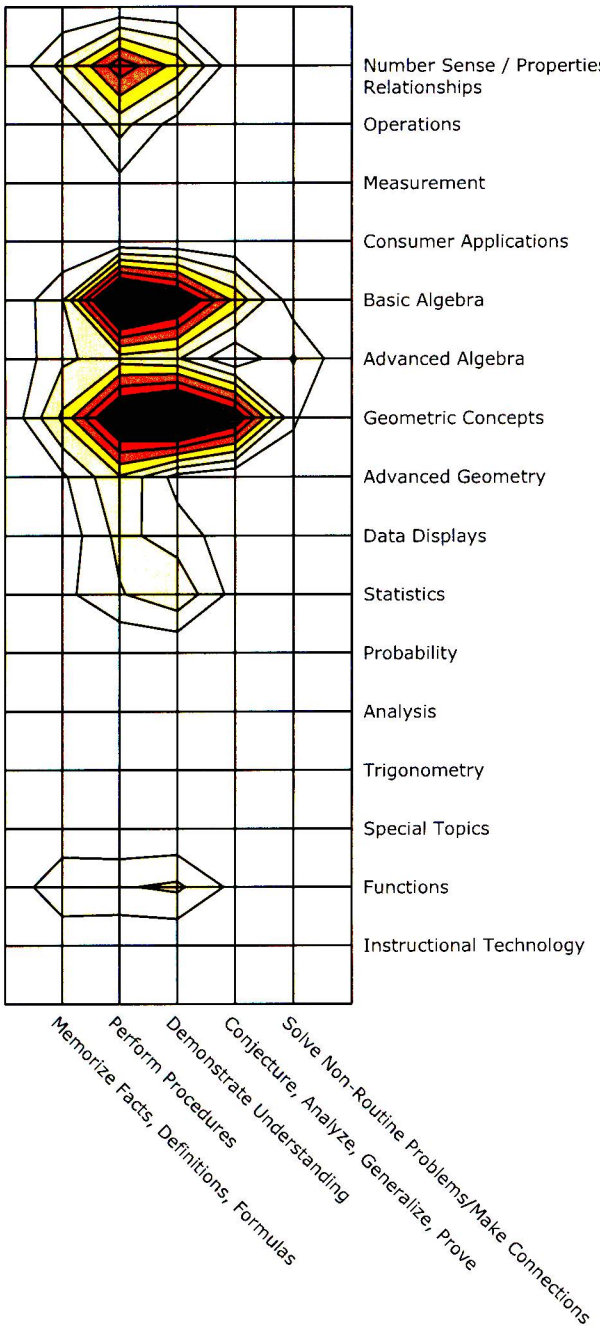
Administration Year: 2010
Viewing: MT Stnds (09) Gr. 8 Data
Data Cut: All Data
Count: 1

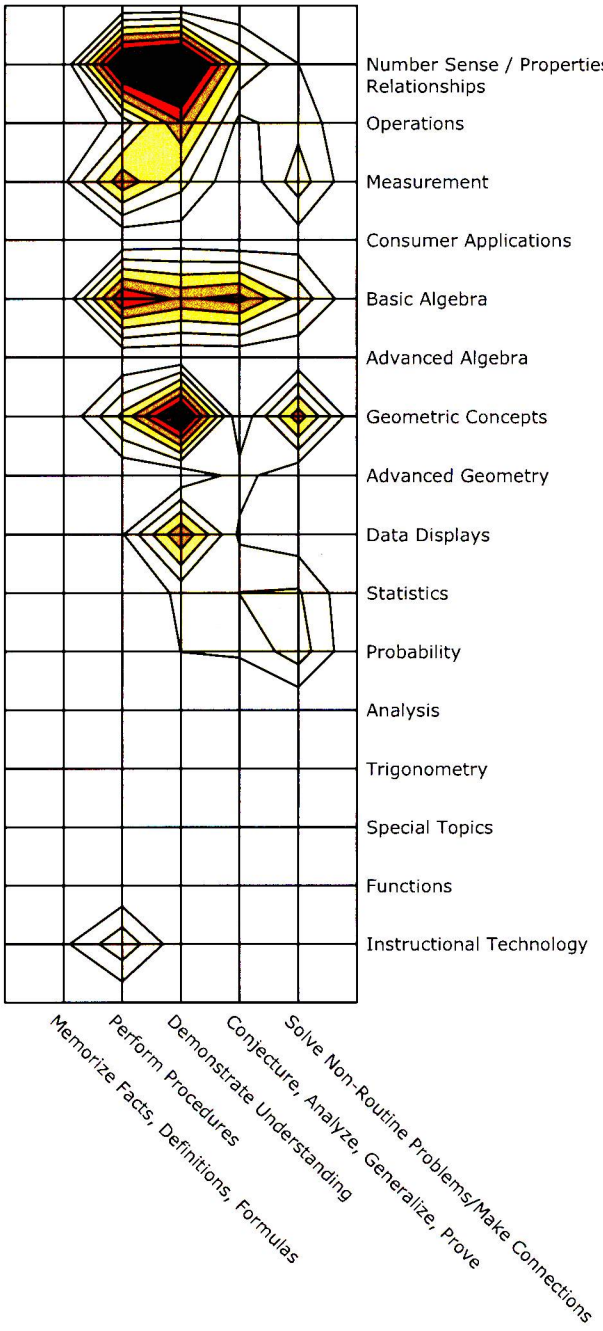
Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%





Appendix J- Mathematics, Surveys of Enacted Curriculum Grades 9-12

Mathematics Content

Montana

Percentage of Overall Mathematics Instructional Time

Coarse Grain Alignment: 0.36

Administration Year: 2010
Viewing: CCSS Gr. 9_12 Data
Data Cut: All Data
Count: 1

Administration Year: 2010
Viewing: MT Stnds (09) Gr. 9_12 Data
Data Cut: All Data
Count: 1

Update Maps

0% - 0.99% | 1% - 1.99% | 2% - 2.99% | 3% - 3.99% | 4% - 4.99%
5% - 5.99% | 6% - 6.99% | 7% - 7.99% | 8% - 8.99% | 9% - 9.99%

Contour Interval - 1% of Content Coverage

Adjust Contour Interval: 1%